

# **HL-DV5A/HL-DV7AW**

**Digital Camera/Recorder**


## **OPERATION MANUAL**

## NOTES ON USING IN SAFETY


The followings are notes for your safe use of this product. Please peruse them before you start using.


### 1. Hazard alert symbol and signal words concerning safety in this manual


The "hazard alert symbol", "signal words" which indicate the degree of danger, "notice" and "reference" are used as follows.

HAZARD ALERT SYMBOL : 

SIGNAL WORDS : DANGER, WARNING, CAUTION

 **WARNING** : Indicates potentially hazardous situation which, if mis-operated, could result in death or serious injury of user.

 **CAUTION** : Indicates potentially hazardous situation which, if mis-operated, could result in slight injury of user or property damages.

 : Just calls your attention to safety operations, working procedures, setting places and so on. It doesn't directly indicate death, injury of user or property damage.

**Notice** : For calling reader's notice.

**Reference** : Indicates reference items described elsewhere.

### 2. Attention on handling of the equipment

1. Do not remove covers or disassemble the equipment except when necessary. It may cause not only equipment failures but also a risk of electric shock.
2. Be sure to turn off the power before removing a module.
3. Be sure to turn off the power before connecting a VCR, accessory and other peripherals.
4. Remove the battery out of the battery case while the equipment is not used for a long time.  
The battery will be wasted while it is kept in the battery case even if the equipment is not used.
5. Do not subject the equipment to violent vibration or great impact. The equipment may be damaged or rendered defective.
6. Do not hold the equipment with any projection of the equipment.  
If you lift up or carry the equipment with the viewfinder or lens, it may drop on the ground as the center of gravity of the equipment is unstable. In addition, the equipment will be damaged if the junction part of the camera and viewfinder or lens is given extra pressure.
7. Since a CCD is used for the pickup device, the problem of image burn-in has been eliminated in normal operation. However, the camera must be protected from the high internal temperatures of CCD device that will occur when an excessively bright subject (the sun for example) is being shot for long periods of time.
8. Avoid using or storing the equipment in the following locations :
  - A place where the temperature is high or low
  - A place where the humidity is extremely high
  - A place with excessive dust
  - A place where snow or rain falls
  - A place to which a vibration or shock is given
  - A place where radio waves are generated
  - A place that may be struck by lightning
9. Transport the equipment in a carrying case as much as possible.
10. When connecting/disconnecting cables, always hold them by the plug.
11. Don't drop metal such as clips or foreign matters into the equipment or insert them to it.
12. Don't splash the equipment with water or other liquids.

**13. Regarding lithium batteries**

Don't use unspecified battery in the equipment. And also, when exchanging or disusing it, please contact to our field office. Because it will result in damages or may be injury to person.

- 14.** Wipe the dust on the equipment by using a dry soft cloth. If the equipment is very dirty, soak the cloth in water or neutral cleanser and twist the cloth strongly, and then wipe the dirty equipment by using the strongly twisted cloth. In case the neutral cleanser is used, wipe the equipment again by water-soaked cloth. Take care not to put water into the equipment while wiping it.

**3. Regular maintenance is recommended**

Some of the parts in this product may deteriorate in time and become unusable even when they are used and stored under normal conditions. To assure long-term product use and safety, it is recommended that the product be inspected. For the inspection and repairs of this product, consult with your sales representative or local source.

## HOW TO READ OPERATION MANUAL

This manual is intended to explain how to use and operate this color camera.

It is written assuming that readers have a basic knowledge of cameras.

It consists of 1 to 9 chapters. Related materials are included in the same chapter as much as possible for convenience. Each chapter follows the order of the actual work so that as you read through, the work in sequence from installation and connection to operation is performed speedily and with no error. Moreover, many figures are used to facilitate your understanding in an effort to avoid difficulty in understanding explanations.

If you do not have enough knowledge about this camera, first read this manual from "1. OUTLINE". Repeated reading on it will make you familiar with the operation of the camera before long. After that, you can get the desired information easily only by referring to a few pages concerning the information you want to know.

In addition, this manual explains the standard specification. It is possible that not all of the contents of revisions for special specifications are covered. In such cases, however, to reflect the contents of those revisions in it, a chapter entitled "9. CHANGING INFORMATION" is provided. Information of revision is written in this chapter ; accordingly, customers may compare it and the changing information chapter to determine what has been changed ("9. CHANGING INFORMATION" may be provided after a product delivery).

### Structure of Operation Manual

#### 1. OUTLINE

: Explains the outline and the features.

#### 2. NAME AND FUNCTION OF EACH PART

: Explains each part name and function.

#### 3. INSTALLATIONS AND CONNECTIONS

: Explains installation and connection methods.

#### 4. OPERATIONS OF CAMERA SECTION

: Explains the functions and operations of the camera section.

#### 5. OPERATIONS OF VCR SECTION

: Explains the functions and operations of the VCR section.

#### 6. INSPECTIONS PRIOR TO SHOOTING

: Explains inspection method before shooting.

#### 7. TROUBLESHOOTING

: Explains possible causes and the remedies.

#### 8. SPECIFICATIONS

: Shows the specifications and the external appearance.

#### 9. CHANGING INFORMATION

: Explains revision contents in case of design revision and at request of customers. Read by comparing this information with the main part of the operation manual.

DVCAM™ is a trademark of SONY Corporation.

Smart Media™ is a trademark of TOSHIBA CORPORATION.

i-LINK is a trademark of SONY Corporation. This meets a specification for IEEE1394-1995 and is technology for the extended specification.



# HL-DV5 / HL-DV7W

## OPERATION MANUAL

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## 1. OUTLINE

### 1.1 OUTLINE

This camera that consists of a 10-bit digital processing camera and a DVCAM format digital VCR, is a high performance one-piece camera-recorder.

Employment of digital processing ICs made this camera have many features such as compact, lightweight and low power consumption.

### 1.2 FEATURES

#### [ Camera Section ]

##### Digital Process

Digital processing method is used for processes after PRE KNEE, assuring a high image quality.

The S/N ratio is 64 dB (NTSC). As gamma and DTL are digitally processed, image quality with excellent S/N ratio can be obtained during operation.

##### Line-up

**HL-DV7W** : 16:9/4:3 switchable IT type 520,000 pixel CCD, corresponding to wide screen.

**HL-DV5** : 4:3 IT type 400,000 pixel CCD

##### Low Power Consumption

Employment of digital processing camera and digital processing VCR made low power consumption.

##### Compact and Lightweight

The height of the camera is low because of small VCR mechanism. The low gravity design allows stable camera work. Flank view can be secured fully, too.

The mass is about 4.5 kg including camera main body, 1.5-inch viewfinder (VF15-32) and microphone (MC-11). It is about 6.5 kg including lens and battery on top of that.

##### HYPER GAIN

The HYPER GAIN function can obtain superhigh sensitivity gain of +48 dB. Minimum subject illuminance is about 0.12 lux.

##### Wireless Receiver Available

Wireless receivers can be installed. They are marketed by Sennheiser electronic GmbH&Co. KG.

##### Rotary Pulse Switch

Settings of various camera functions such as electronic shutter, SUPER-V and camera menu can be made speedily.

##### Electronic Shutter Function

Besides the six preset shutters, the variable shutter function is provided, so shutter speed can be changed continuously.

The SUPER-V function, which improves the vertical resolution, is also provided.

##### Shoulder Pad

Position adjustment is possible without a driver. And new material which is hard to slip is adopted.

##### 1.5-inch Viewfinder (VF15-32)

This camera is equipped with a high performance viewfinder with horizontal resolution of 600 TV lines.

It is easy to recognize the tally by the rear tally lamp on the rear of the viewfinder even at any angle.

##### Viewfinder Indication

It is easy to set the desired viewfinder indication by the camera menu.

- Safety marker (80%, 90%), center marker
- Frame marker
- 4:3 marker (for HL-DV7W at 16:9 mode)
- Audio level
- Zebra 1, zebra 2
- Information with characters
- Automatic 16:9/4:3 scan size change (for HL-DV7W)
- Time code display

##### DTL Functions

Diagonal DTL, skin DTL, DTL boost frequency, H/V balance and other various DTL functions are provided.

##### Remote Control

Use of the remote controllers can make a variety of images.

- RCP-11, RCP-50, RS-11, RM-11

##### External VCR Connection (optional)

When the VCR adaptor is installed, analog component signals can be output to an external VCR.

##### Memory Card (Smart Media™)

It is possible to memorize camera operating state in the memory card. Data stored in the memory card can be read out to set up the camera.

The Smart Media™ (SSFDC 2MB) should be used as a memory card.

**P.FUNC Button**

This camera has the ON/OFF button to which a user can assign a frequently used function (SCENE FILE, SOFT DTL, BLACK PRESS/STRETCH, etc.). This button named the personal function button is located on the right side of the camera.

**AHD (Auto Hue Detect)**

This function automatically detects the hue where the skin DTL function works. So, it makes the skin DTL operation easy even outdoors.

**Reset Function**

Pressing the RESET button makes camera setting values by camera level adjustment and camera menu settings return to the factory setting values.

**i.LINK Output**

This camera has one DV OUT connector corresponding to IEEE1394 standards, so it can be connected with a VCR having the DV interface.

**Shockless AWB Memory Switching**

Switching the AWB memories can be made smoothly without shock.

**AWB Memories Linked to Filter Position**

The AWB memories switch according to the filter position.

**Built-in Color Bar Generator**

Color bar signal can be monitored.

**[ VCR Section ]****DVCAM Format**

This VCR uses the DVCAM™ digital recording format and digitalizes the internal signal processing to provide more stable output signals and higher reliability.

As this VCR is also compatible with consumer DV, a DV cassette recorded on a DV-format VCR can be played back on this VCR.

**Playback**

Playback of color images and audio sound is possible without a playback adaptor.

**PCM Digital Audio**

It is possible to select two-channel recording mode (with a sampling frequency of 48 kHz) and four-channel recording mode (with a sampling frequency of 32 kHz).

**Rec Review**

Check of recording is easy to do.

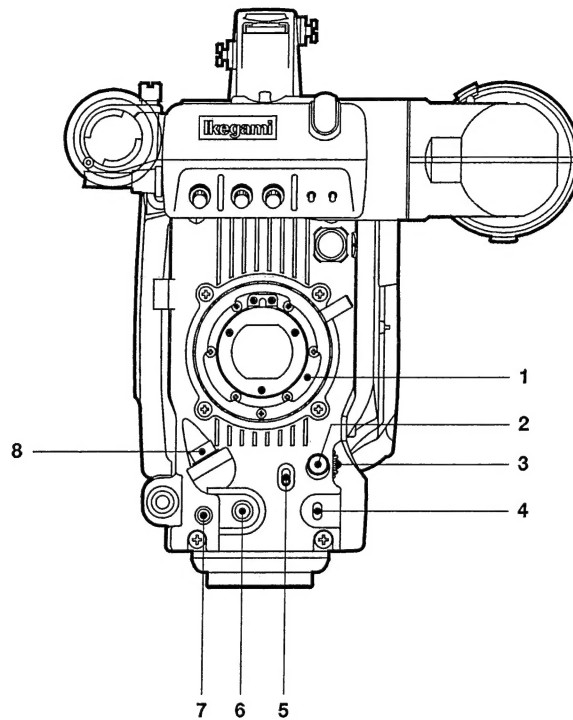
**2 Kind of DVCAM Cassettes Available**

This camera (VCR section) can use both standard-size and mini-size DVCAM cassettes. The maximum recording times are 184 minutes for standard size cassettes and 40 minutes for mini cassettes.

While a DVCAM cassette with a cassette memory is used, information about editing points (ClipLink™ log data) that is specified in shooting is recorded into the cassette memory.

## 2. NAME AND FUNCTION OF EACH PART

### 2.1 Camera Front View



**1 Lens Mount**

**2 SET Button**

**3 Rotary Pulse Switch**

**4 AUTO W/B BAL Switch**

**5 SHUTTER/SUP-V Switch**

**6 VTR START Button**

**7 EARPHONE Jack**

**8 LENS Connector**

#### 1 LENS Mount

Accepts the lens (B4 bayonet mount : standard).

##### **Reference**

Refer to "3.3 Mounting Lens" for how to mount a lens.

#### 2 SET Button

#### 3 ROTARY PULSE Switch

Used to set items such as the Shutter, Super-V and Camera Menu.

##### **Reference**

Refer to "4.2 Selecting Shutter Speed", "4.3 Improving Vertical Resolution (Super-V)" and "4.14 Camera Menu" for setting.

#### 4 AUTO W/B BAL Switch

##### • AWB (Auto White Balance)

Press down this switch to "AWB" position and the white balance adjustment starts.

The adjusted value is stored in the memory of "A" or "B", a channel selected by the AWB SELECT switch on the camera right side.

However, it is not stored in the memory when the AWB SELECT switch is set to "OFF" position.

##### • ABB (Auto Black Balance)

Press down this switch to "ABB" position and the black balance adjustment starts.

The adjusted value is stored in the memory.

##### **Reference**

Refer to "4.1 Auto White Balance and Auto Black Balance" for operations.

**5 SHUTTER/SUP-V Switch**

Set this switch to "ON" position and the Shutter or Super-V mode works (shutter speed can be selected by the Rotary Pulse switch).

The function working is displayed on the viewfinder screen with characters.

**Reference**

Refer to "4.2 Selecting Shutter Speed" and "4.3 Improving Vertical Resolution (Super-V)" for setting.

**6 VTR START Button**

Used to start or stop recording to the VTR.

This switch works in parallel with the VTR button on the lens.

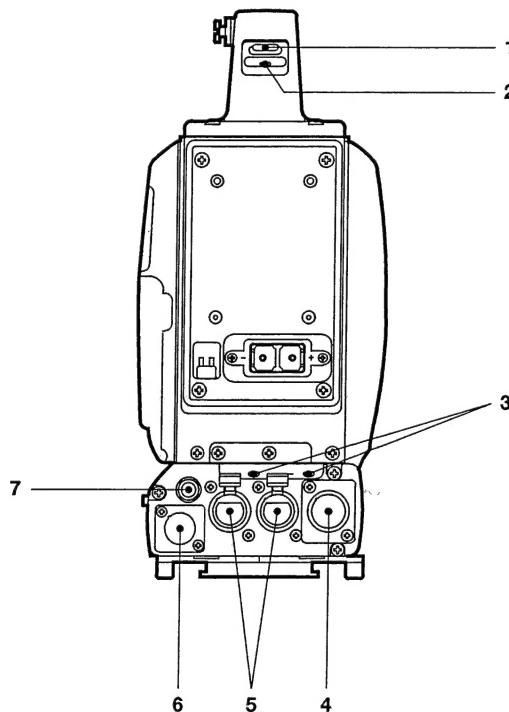
**7 EARPHONE Jack**

Accepts an earphone for audio monitor.

When this is used, the sound from the speaker stopped automatically.

**8 LENS Connector**

Accepts the lens cable.

**2.2 Camera Rear View**

- 1 Back Tally Lamp
- 2 Back Tally Switch
- 3 AUDIO IN SELECT Switches
- 4 AUDIO OUT Connector

- 5 AUDIO IN Connectors
- 6 DC IN Connector
- 7 DC OUT Connector

**1 Back Tally Lamp**

Lights up during recording to inform persons behind the camera operator of recording. However, it does not light up when the Back Tally switch is set to "OFF".

**2 Back Tally Switch**

Used to turn on or off the Back Tally lamp during recording.

**3 AUDIO IN SELECT Switches**

Switch according to audio signals which are input from the AUDIO IN connectors.

- **LINE** : When inputting line audio signal.
- **MIC** : When connecting a microphone.
- **+48V** : When connecting a microphone dedicated for phantom powering.

**Reference**

Refer to "3.7 Mounting Microphone", "3.8 Connecting Audio Line" and "5.3 Manually Adjusting Audio Recording Level" for details.

**4 AUDIO OUT Connector**

Used for connecting audio equipment.

**Reference**

Refer to "3.10 Connecting Audio Monitor" for more information.

**5 AUDIO IN Connectors**

Used for connecting a microphone or inputting line audio signal.

**Reference**

Refer to "3.7 Mounting Microphone", "3.8 Connecting Audio Line" and "5.3 Manually Adjusting Audio Recording Level" for more information.

**6 DC IN Connector**

Used to supply +12V DC power from an AC pack. When both of a battery pack and AC pack are used, power from the AC pack takes priority, and the battery power is saved.

**Reference**

Refer to "3.6 Connecting Power Supply" for how to connect power supplies.

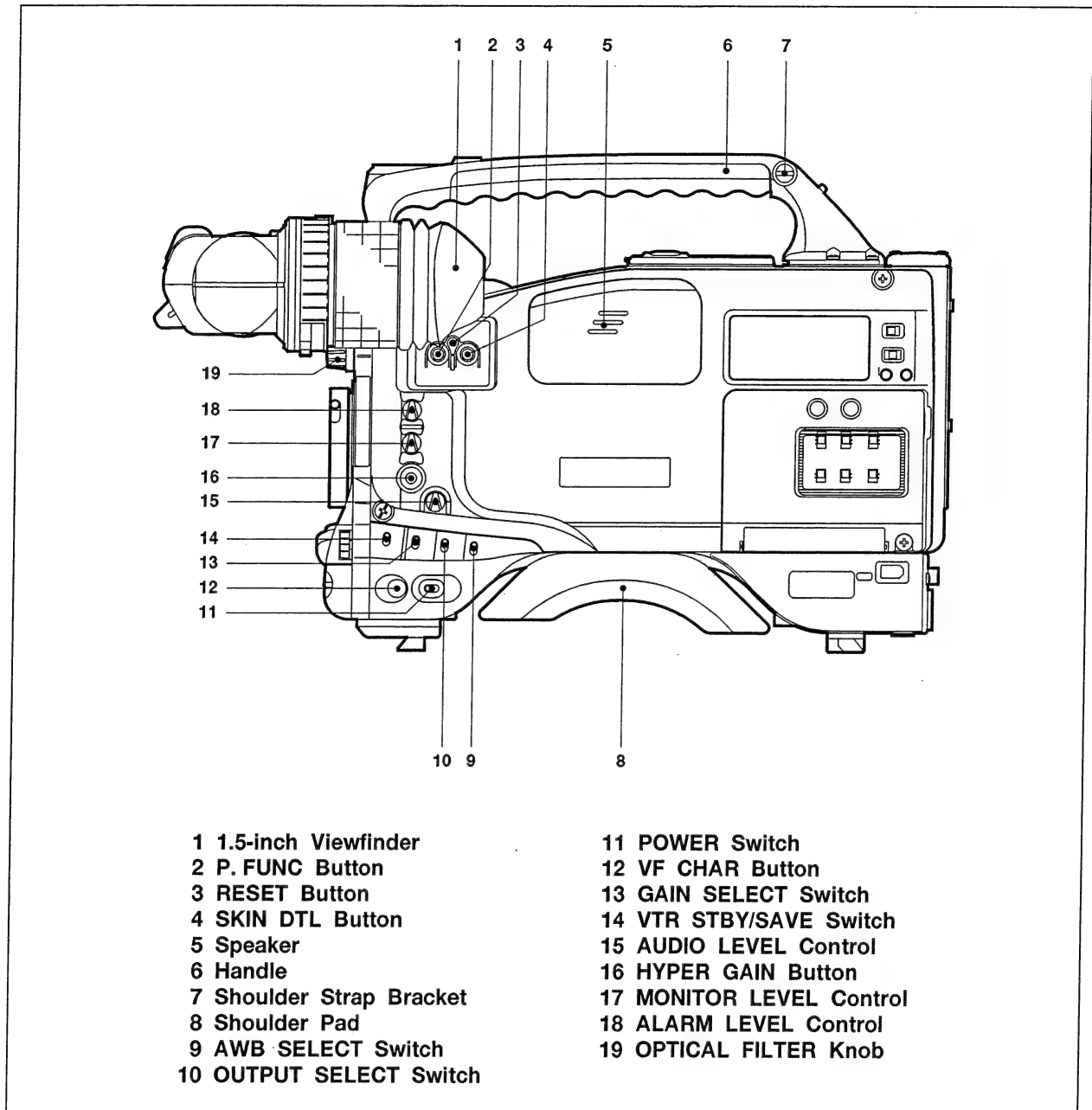
**7 DC OUT Connector**

This is a power output connector (max. 100mA) for a wireless receiver and supplies +12V DC power to it.

**Reference**

Refer to "3.13 Installing Wireless Receiver" for how to mount a wireless receiver.

## 2.3 Camera Right View -1

**1 1.5-inch Viewfinder**

Used for checking images of the camera and playback images of the VCR.

Various kinds of characters and markers are displayed for enabling the camera to be operated easily.

**Reference**

Refer to "3.4 Mounting Viewfinder" for how to mount the viewfinder.

**2 P.FUNC Button**

A function frequently used by camera operators can be assigned to this button and turned on or off the function

by this button.

**Reference**

Refer to "4.8 Assigning Function to P.FUNC Button" for details.

**3 RESET Button**

Used for returning level adjustment values and camera menu settings of the camera to factory settings.

**Reference**

Refer to "4.10 Initializing Camera Settings" for details.

**4 SKIN DTL Button**

Used for turning on or off the SKIN DTL function.  
Pressing this switch continuously activates the AHD, which automatically detects hue the SKIN DTL function works on.

**Reference**

Refer to "4.5 Enhancing Screen Detail (DTL)" for details on the SKIN DTL, and "4.9 AHD (Auto Hue Detect)" for details on the AHD.

**5 Speaker**

E-E sound can be monitored during recording of the VCR and playback sound during playback. Alarm also sounds. When an earphone is connected to the EARPHONE jack, speaker sound stopped automatically.

**6 Handle**

For carrying this equipment.

**7 Shoulder Strap Bracket**

Used to attach the optional shoulder strap.

**Reference**

Refer to "3.5 Attaching Shoulder Strap" for how to attach the shoulder strap.

**8 Shoulder Pad**

Used for carrying the camera on shoulder.  
Its position is adjustable back and forth.

**Reference**

Refer to "4.12 Adjusting Shoulder Pad Position" for how to make adjustment.

**9 AWB SELECT Switch**

Used for switching the two memory channels for the auto white balance.

Two white balance data under different conditions can be stored in the Ach ("A") and Bch ("B") memories respectively. Switch the memory channels as required. And, when this switch is set to "OFF", the auto white balance is not executed. At this time, the color temperature is set to the preset state (3200K).

**Reference**

Refer to "4.1 Auto White Balance and Auto Black Balance" for details on the Auto White Balance.

**10 OUTPUT SELECT Switch**

Select output signal of the camera from between the video signal ("CAM") and the color bar signal ("BARS"). The selected signal is output to the VIDEO OUT connector and the MON connector on the camera left side.

It is also monitored on the viewfinder screen.

**Notice**

When this switch is set to "BARS", lens iris is automatically closed to protect the image devices. (when "BARS WITH CAP" of the camera menu "OTHERS" is set to "ON").

**11 POWER Switch**

Used for turning on or off the entire camera power.

**12 VF CHAR Button**

Pressing this button displays various information such as zebra indicator, markers, characters etc., on the viewfinder screen to show the state of the camera.

When this button is used with the SET button on the camera front side, the camera menu is displayed.

**Reference**

Refer to "4.14 Camera Menu" for details on the camera menu.

**13 GAIN SELECT Switch**

Used for switching the video gain (sensitivity).

Operating this switch displays characters on the viewfinder screen to indicate the selected gain.

- **O** : 0dB. Normally set to this position.
- **MID** : Middle gain value set by the camera menu obtained.
- **HIGH** : High gain value set by the camera menu obtained.

**Reference**

Refer to "4.6 Selecting Gain" and "4.14 Camera Menu" for details.

**14 VTR STBY/SAVE Switch**

Used for turning on or off the power for the VCR section.

- **STBY** : The camera section is in operating state while the VCR section is on stand-by mode. At this time, if the VTR START button on the camera front side is pressed, recording will start immediately.
- **SAVE** : The camera section is in operating state while the VCR section is not powered. So, recording will not start.



**15 AUDIO LEVEL Control**

Used for adjusting sound level of the CH-1 input of the AUDIO IN connectors on the camera rear side. The audio level is displayed in the display window.

**Reference**

Refer to "5.3 Manually Adjusting Audio Recording Level" for how to make adjustment.

**16 HYPER GAIN Button**

Super high sensitivity gain of +30dB to +48dB is obtained by pressing this button.

Characters are displayed on the viewfinder screen when this button is operated.

**Notice**

Press this switch for more than 2 seconds to obtain hyper gain mode.

**Reference**

Refer to "4.6 Selecting Gain" and "4.14 Camera Menu" for details.

**17 MONITOR LEVEL Control**

Used for adjusting sound level for the speaker and earphone.

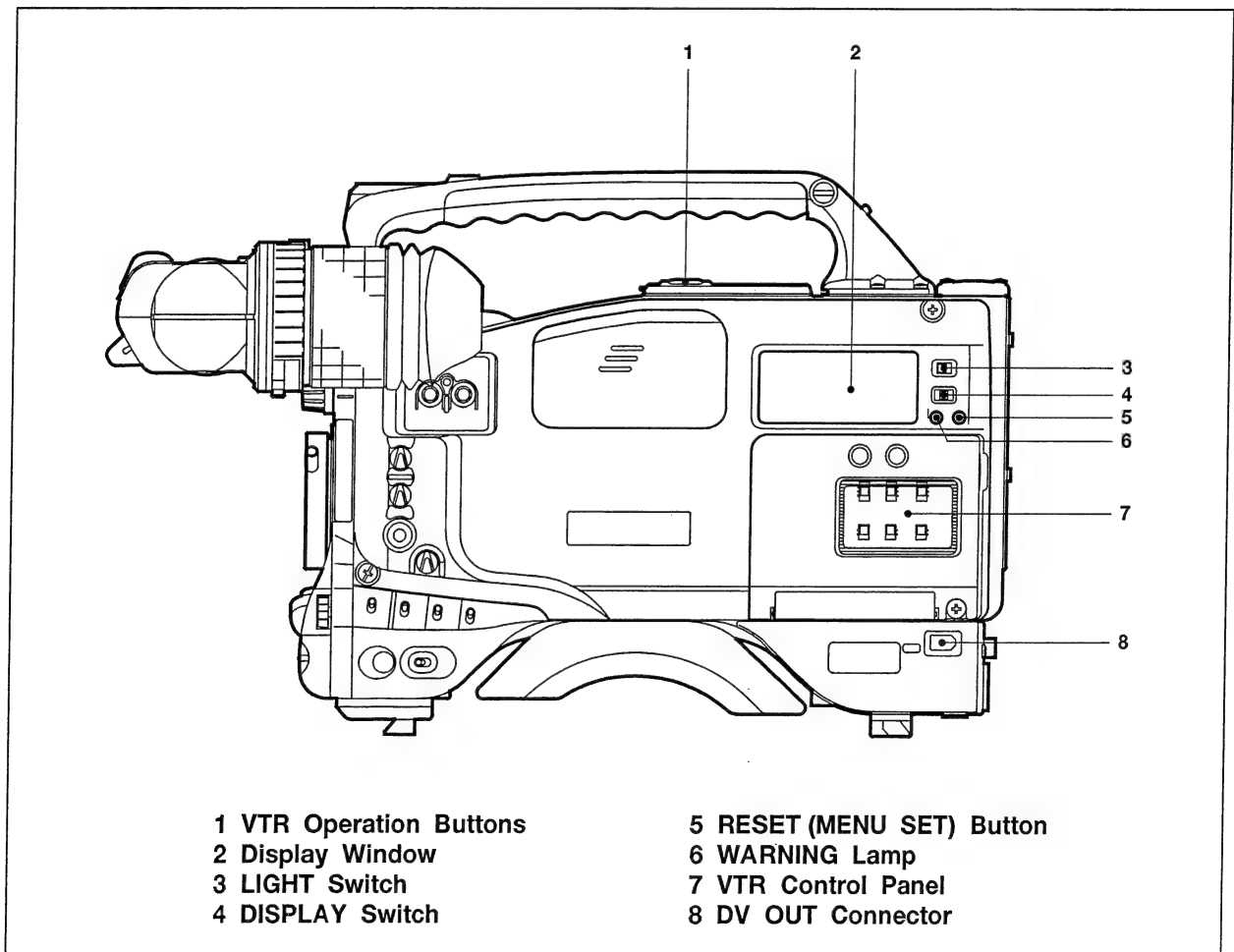
**18 ALARM LEVEL Control**

Used for adjusting sound level for warning.

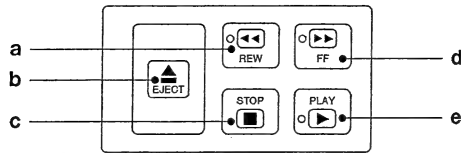
**19 OPTICAL FILTER Knob**

Used for switching the CC (Color Conversion) filters.

- 1 : 3000K
- 2 : 5600K+1/16ND
- 3 : 5600K
- 4 : 5600K+1/64ND

**2.4 Camera Right View -2**

## 1 VTR Operation Buttons



### a. REW Button

Press this button when rewinding the tape. During rewind, the lamp lights up.

### b. EJECT Button

Press this button when inserting or ejecting a cassette.

### c. STOP Button

Press this button when stopping the tape run.

### d. FF Button

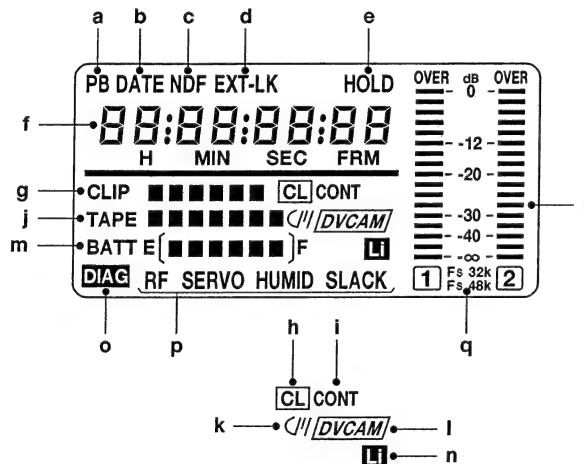
Press this button when making the tape run in the forward direction at fast speed. During fast forward, the lamp lights up.

### e. PLAY Button

Press this button when watching the playback images. During playback, the lamp lights up.

The playback images are monitored on the viewfinder screen. The signals are also outputting to the VIDEO OUT connector on the camera left side.

## 2 Display Window



### a. PB Indication

Appears during playback, fast forward or rewind with the time data display showing a time code or user bit value.

### b. DATE Indication

Appears when the date or time is displayed in the time value indication area.

### c. NDF Indication

Appears when non drop-frame mode is selected.

#### Reference

Refer to "5.8 Setting Time Code Value" for details on drop-frame. Drop-frame mode is selected at our factory. Refer to "5.11 VTR Menu" for how to change the mode.

### d. EXT-LK Indication

Appears when the internal time code generator is locked to an external signal input to the TC IN connector.

### e. HOLD Indication

Appears when the internal time code generator is stopped.

### f. Time Value Indication

Shows a counter value, time code value, or user bit value depending on the DISPLAY switch setting.

Pressing the MENU button in the VTR control panel displays the VTR menu.

### g. CLIP Remainder Indication

Shows how many clip shots can still be recorded.

Indication	Cue point
CLIP ■■■■■■	101 points or more
CLIP ■■■■■	81 to 100 points
CLIP ■■■■■	61 to 80 points
CLIP ■■■■	41 to 60 points
CLIP ■■■	21 to 40 points
CLIP ■■	1 to 20 points
CLIP ■ (blinking)*	1 to 6 points
CLIP (blinking)*	

(blinking)\* : When tag recording with ClipLink function is possible (when CONT indication appears).

### h. CL Indication

Appears when using a cassette with cassette memory containing ClipLink log data.

### i. CONT Indication

Appears when tag recording using the ClipLink function is possible.

### j. TAPE Remainder Indication

Shows the remaining tape time during recording or pause mode.

Indication	Tape time remaining
TAPE ■■■■■■	30 minutes or more
TAPE ■■■■■	25 to 30 minutes
TAPE ■■■■■	20 to 25 minutes
TAPE ■■■■■	15 to 20 minutes
TAPE ■■■■	10 to 15 minutes
TAPE ■■■	5 to 10 minutes
TAPE ■■	2 to 5 minutes
TAPE ■ (blinking)	0 to 2 minutes
TAPE (blinking)	End of tape

**k. Cassette Memory Indication**

Appears when using a cassette with cassette memory.

**l. DVCAM Indication**

Disappears when the cassette being played back is not for DVCAM format.

**m. BATT Indication**

Indicates the battery capacity and voltage.

**Reference**

Change menu setting for the battery used. Refer to "5.11 VTR Menu" for setting.

**n. Lithium Backup Battery Warning**

Appears when the voltage of the internal lithium backup battery (CR2032) is low.

**Reference**

If this indication appears, replace the lithium backup battery immediately. Refer to "3.14 Replacing Lithium Battery" for how to make replacement.

**o. DIAG Indication**

Appears during maintenance or menu operations.  
It does not appear during normal operation.

**p. Warning Indications**

Include the followings.

- **RF** : Appears when the video heads are clogged, or when there is a fault in the recording system.
- **SERVO** : Appears when the servo lock is not functioning.
- **HUMID** : Appears when there is condensation on the drum.
- **SLACK** : Appears when there is a tape winding fault.

**Reference**

Refer to "5.13 Warning System" for measures against warning indications.

**q. Audio Mode Indications**

These show audio recording/playback mode.

- **Fs32k** : 4-channel mode (32kHz sampling frequency)
- **Fs48k** : 2-channel mode (48kHz sampling frequency)

**Reference**

Refer to "5.11 VTR Menu" for how to select audio recording mode.

**r. Audio Level Indicators**

These show the audio recording or playback levels of channel 1 and channel 2.

**4 DISPLAY Switch**

Used for switching time value indication in the display window.

• **COUNTER**

: Shows a tape transport time in HH:MM:SS (hours, minutes and seconds).

• **TC** : Shows a time code value in the time code.

• **UB** : Shows a user bit value in the time code.

**5 RESET (MENU SET) Button**

Used for resetting a time value shown in the display window. This button operates differently depending on settings of the DISPLAY switch and the TC mode switch -1/-2.

Switch setting	RESET button operation
DISPLAY : COUNTER	Resets counter value to 0:00:00.
DISPLAY : TC TC mode switch -1 : PRESET TC mode switch -2 : SET	Resets time code to 00:00:00:00.
DISPLAY : UB TC mode switch -1 : PRESET TC mode switch -2 : SET	Resets user bit to 00 00 00 00.

Also, this button is used to change the VTR menu settings.

**Reference**

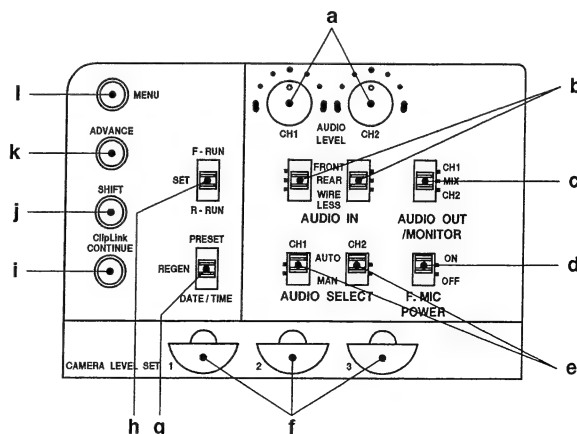
Refer to "5.11 VTR Menu" for how to operate the VTR menu.

**6 WARNING Lamp**

Lights up or blinks when an abnormality occurs in the VTR section.

**Reference**

Refer to "5.13 Warning System" for details.

**7 VTR Control Panel****3 LIGHT Switch**

Used for turning on or off the display window light.

**a. AUDIO LEVEL Controls**

Used for adjusting audio level of signals input from the AUDIO IN connectors on the camera rear side when the AUDIO SELECT switches are set to "MAN". The audio level are displayed in the display window.

**Reference**

Refer to "5.3 Manually Adjusting Audio Recording Level" for how to make adjustment.

**b. AUDIO IN Switches**

Used for selecting input signal recorded to the audio channels, CH-1 and CH-2.

- **FRONT** : Selects signal input from a microphone connected to the Front Microphone connector on the camera left side.
- **REAR** : Selects audio signal input from equipment connected to the AUDIO IN connectors on the camera rear side.
- **WIRELESS** : Selects signal input from a wireless receiver (optional).

**c. AUDIO OUT/MONITOR Switch**

Used for switching audio channel whose signal is output from the AUDIO OUT connector on the camera rear side and whose sound can be heard from the speaker or earphone.

**d. F.MIC POWER Switch**

Used for turning on or off the front microphone power (+48V).

**e. AUDIO SELECT Switches**

Used for switching mode for audio level adjustment.

- **AUTO** : Automatic adjustment.
- **MAN** : Manual adjustment.

**Reference**

Refer to "5.3 Manually Adjusting Audio Recording Level" for details on manual adjustment of audio level.

**f. CAMERA LEVEL SET Rotary Encoders**

Used for adjusting the level by only this camera. Adjustment is made at "LEVEL SET" of the camera menu "VIDEO PROCESS MODE".

**Reference**

Refer to "4.14 Camera Menu" for details.

**g. TC Mode Switch -1**

Used for selecting between resetting the time code value or continuing from the time code value at the end of the previous recording.

- **PRESET** : Starts recording time code values on the tape from the currently set value.

- **REGEN** : Reads the tape's current time code value and sets the time code to record starting from that value.

This ensures that the tape's time code will be continuous, even if there is a break in recording.

The time code value is advanced in "R-RUN" mode regardless of the setting on the TC Mode switch -2.

- **DATE/TIME** : Synchronizes the time code to the real time clock set in the VTR menu. In this case, the time code is recorded in drop-frame mode (NTSC only).

**Reference**

If the ClipLink function is set to "on" (factory setting : "on") and the CONT indication is displayed in the display window, regardless of the setting of this switch, the time code generator automatically enters the "REGEN" mode at recording. When ClipLink shooting will not be performed, set the ClipLink function to "oFF".

Refer to "5.10 Recording Using ClipLink Function" for details on the ClipLink function, and "5.11 VTR Menu" for details on the VTR menu.

**h. TC Mode Switch -2**

Used for setting the mode for advancing time code values when the TC Mode switch -1 has been set to "PRESET".

- **F-RUN** : The time code advances continuously whether or not the VCR is recording. Use this setting to align the time code value with real time.
- **SET** : Use this setting to set the time code or user bit value.
- **R-RUN** : The time code value advances only during recording. Use this setting to have consecutive time code values for consecutive recordings on the tape.

**Reference (For NTSC)**

There are two time code frame modes : drop-frame (DF) mode and non drop-frame (NDF) mode. Drop-frame mode is selected at our factory.

Refer to "5.8 Setting Time Code Value" for details, and "5.11 VTR Menu" for how to change the mode.

**i. ClipLink CONTINUE Button**

When restarting ClipLink shooting, press this button to add the new clip at the end of the recorded clips.

**Reference**

If recording is restarted without this button pressed, the pre-recorded ClipLink log data is deleted.

Refer to "5.10 Recording Using ClipLink Function" for details.

**j. SHIFT Button**

When setting time code and user bit values, or at menu setting, press this button to select a digit. The selected digit will start blinking. In other case, press this button to show the date (when the DISPLAY switch is set to "UB") and time (when the DISPLAY switch is set to "TC") instead of time value.

**Reference**

Refer to "5.7 Setting User Bit Value" and "5.8 Setting Time Code Value" for how to set user bit and time code values.

**k. ADVANCE Button**

When setting time code and user bit values, or at menu setting, press this button to increase the digit that has been selected with the SHIFT button. In other case, press this button to show the clip remaining indication instead of time value.

**l. MENU Button**

Press this button to display the VTR menu in the display window.

**Reference**

Refer to "5.11 VTR Menu" for details on the VTR menu.

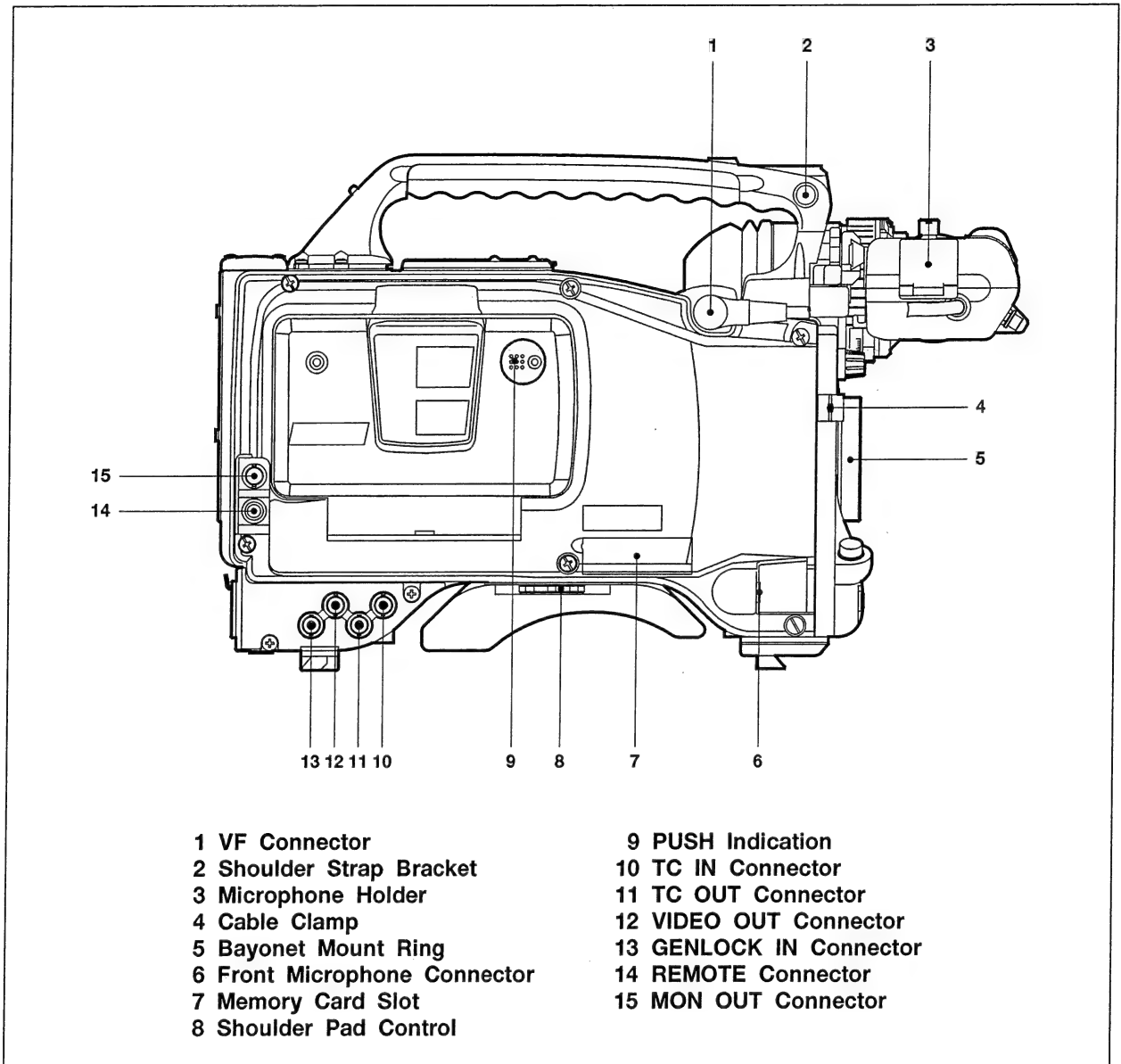
**8 DV OUT Connector**

Connect with the DV input connector of an external VCR.

**Notice**

When this connector is connected with equipment such as an external VCR, the ClipLink function and audio fade-in/fade-out function will not work.

## 2.5 Camera Left View



### 1 VF Connector

Connect the cable of the viewfinder.

#### **Reference**

Refer to "3.4 Mounting Viewfinder" for how to mount the viewfinder.

### 2 Shoulder Strap Bracket

Attach the supplied shoulder strap.

#### **Reference**

Refer to "3.5 Attaching Shoulder Strap" for how to attach the shoulder strap.

### 3 Microphone Holder

Fix a microphone.

#### **Reference**

Refer to "3.7 Mounting Microphone" for how to mount the microphone.

### 4 Cable Clamp

Fix the lens cable and the microphone cable.

**5 Bayonet Mount Ring**

After attaching a lens to the Lens Mount, tighten this ring to fix the lens.

Tighten the ring securely or it might get loose in long period of use.

**Reference**

Refer to "3.3 Mounting Lens" for how to mount the lens.

**6 Front Microphone Connector**

Connect the cable of the microphone and +48V phantom power will be supplied.

**7 Memory Card Slot**

Open the cover and insert a memory card.

**Notice**

Please use Smart Media™ cards which we specify. Pay attention to the top and bottom of the memory cards in the insertion.

Refer to "4.7 Using Memory Card" for details.

**8 Shoulder Pad Control**

Adjust the position of shoulder pad for the best balance in carrying the camera on shoulder.

When adjusting, loosen the knob and tighten it to fix after adjusting.

**Reference**

Refer to "4.12 Adjusting Shoulder Pad Position" for how to make adjustment.

**9 PUSH Indication**

Press on the "PUSH" indication to close the cassette holder.

**10 TC IN Connector**

Input an external signal (time code signal) for synchronizing the built-in time code generator.

**11 TC OUT Connector**

This outputs time code signals from the built-in time code generator. When a time code signal is input to the TC IN connector, this output signal is synchronized to it.

**12 VIDEO OUT Connector**

This outputs the video signal of the camera ("CAM") or color bar signal ("BARS") in accordance with the position of the OUTPUT SELECT switch on the camera right side.

Markers and characters is not output.

**13 GENLOCK IN Connector**

Input a synchronizing signal (black burst or composite signal) from an external system to have the camera genlocked.

**Reference**

Refer to "4.14 Camera Menu" for details.

**14 REMOTE Connector**

Connect the optional remote controller (RCP-11, RCP-50, RS-11, RM-11, etc.).

**Reference**

Refer to "4.15 Table of Remote Controller Operations" for notes during operation.

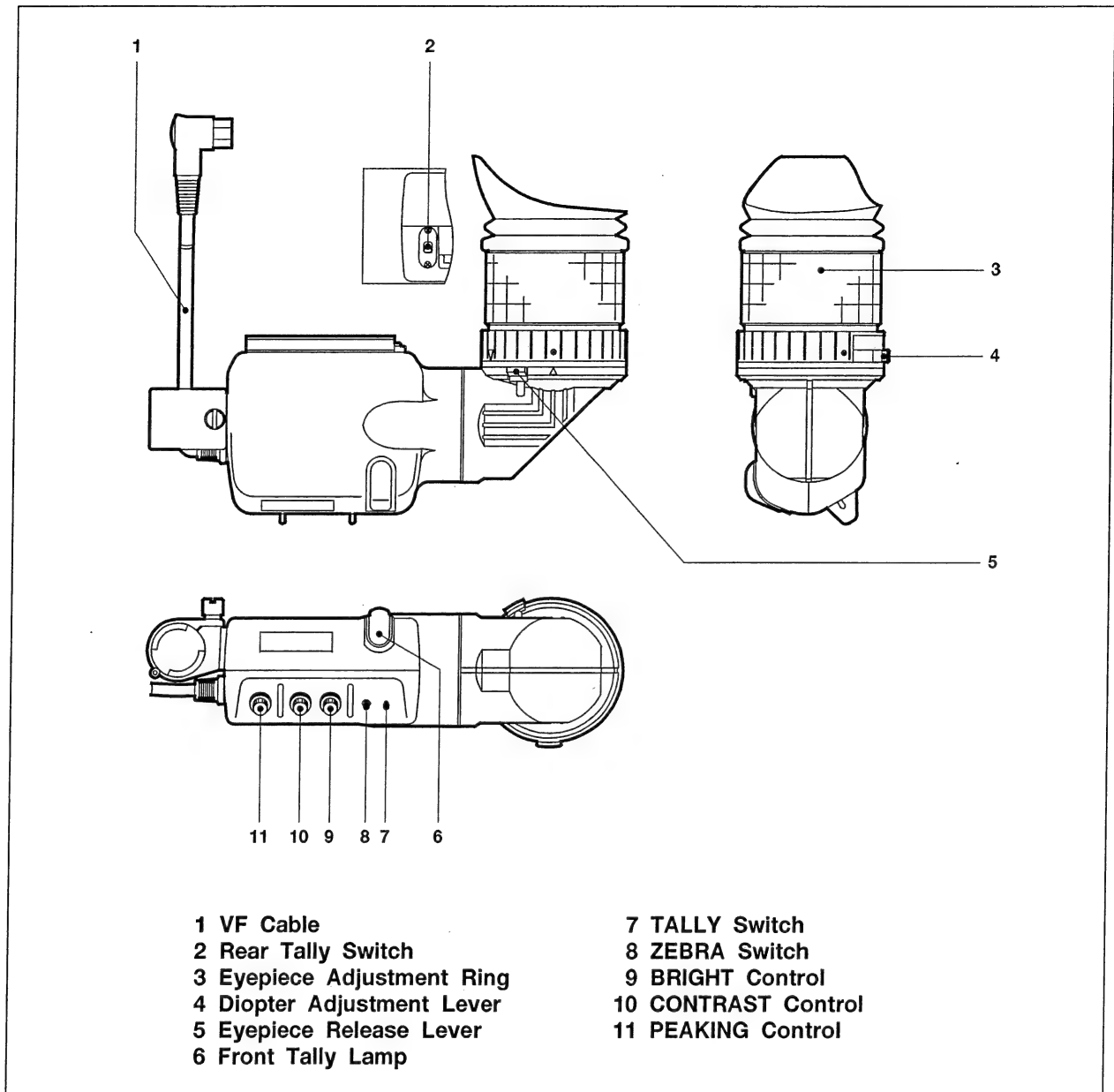
**15 MON OUT Connector**

This outputs the video signal (ENC, Y, R, G, B, R+G+B, R-G, B-G) set in the camera menu ("MONITOR OUT") or by remote controllers.

**Reference**

Refer to "4.14 Camera Menu" for details on the camera menu.

## 2.6 Viewfinder



### 1 VF Cable

Connect with the VF connector on the camera left side.

### 2 Rear Tally Switch

Used to cover the internal LED which lights up during recording.

### 3 Eyepiece Adjustment Ring

Adjust the eyepiece position back and forth according to the person's eye position.

### 4 Diopter Adjustment Lever

Used to adjust visibility according to a person's eyesight so that the viewfinder images can be monitored much

sharper.

Adjustment is made by sliding the lever left and right while pushing it slightly.

### 5 Eyepiece Release Lever

Used to release the eyepiece when cleaning the inside of the viewfinder.

### 6 Front Tally Lamp

This lights up during recording.

It does not light up when the TALLY switch is set to "OFF".



## 7 TALLY Switch

Used to turn on or off the Front Tally lamp.

- **HIGH** : The Front Tally lamp gets brighter during recording.
- **OFF** : The Front Tally lamp goes off even during recording.
- **LOW** : The Front Tally lamp gets darker during recording.

## 8 ZEBRA Switch

With this switch set to "ON", zebra pattern is displayed on the viewfinder screen when the video level gets beyond the setting value.

### **Reference**

Refer to "4.14 Camera Menu" for how to set video level.

## 9 BRIGHT Control

Used to adjust luminance of the viewfinder screen. This control has no effect on the output signal of the camera.

## 10 CONTRAST Control

Used to adjust contrast of the viewfinder screen. This control has no effect on the output signal of the camera.

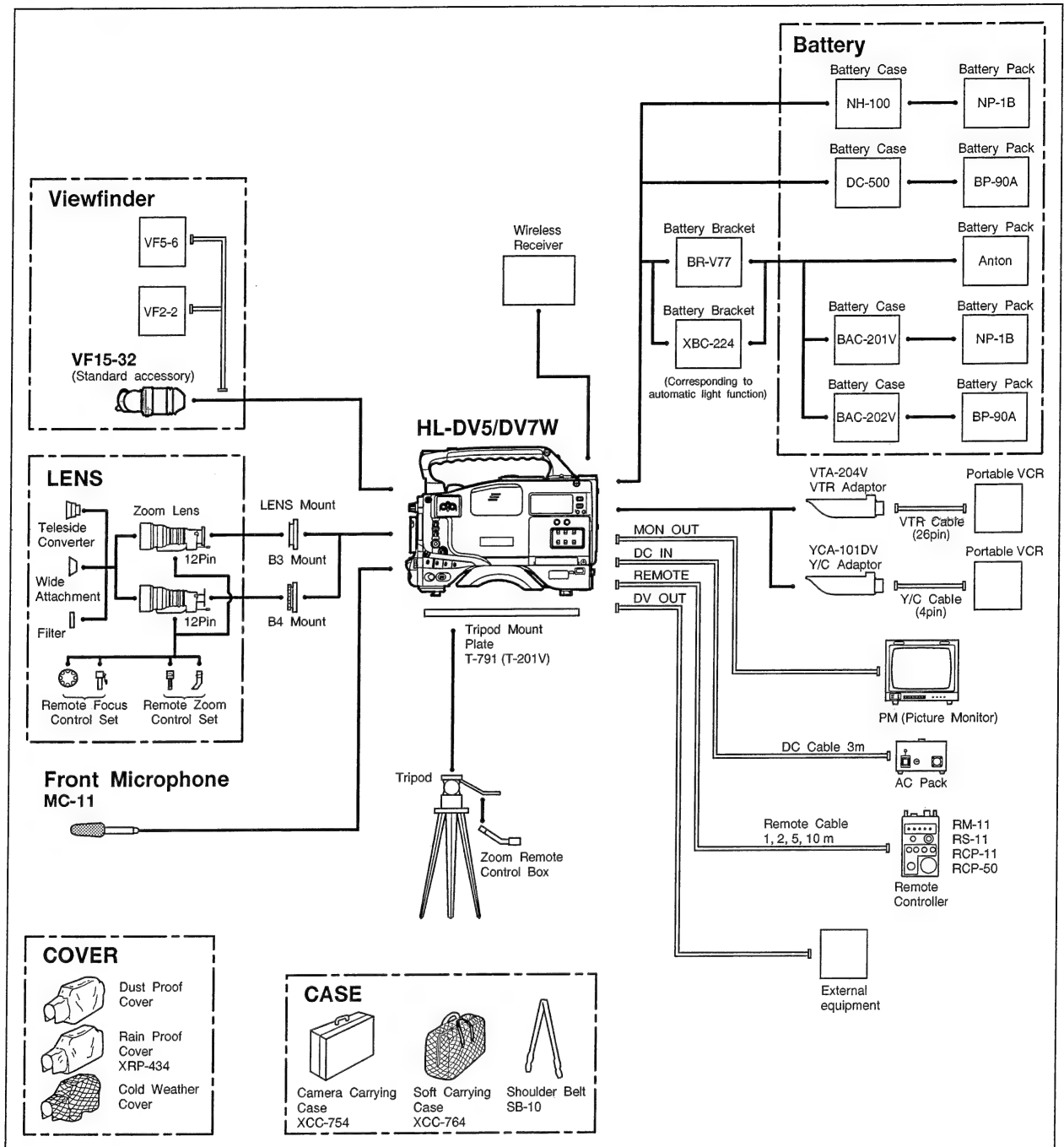
## 11 PEAKING Control

Used to adjust the contour level to make images much sharper so that the focus can be optimized.

This control has no effect on the output signal of the camera.

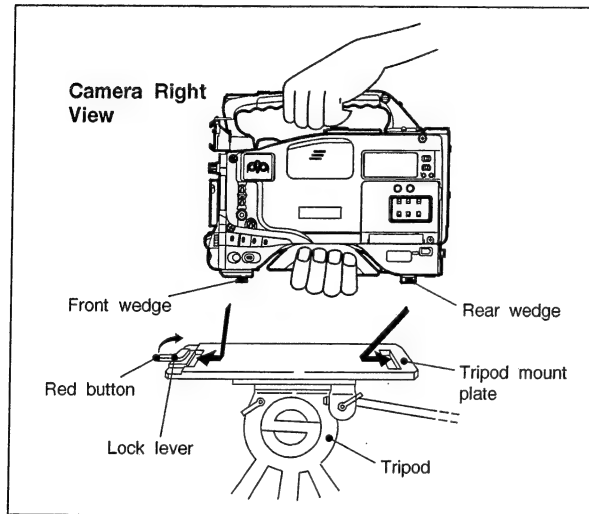
## 3. INSTALLATIONS AND CONNECTIONS

### 3.1 System Setup Diagram



### 3.2 Installing on Tripod

1. Make sure that the Tilt lock and Pan lock are in the locked position.
2. Insert the rear wedge of the camera into the groove of the tripod mount plate and move the camera backward slightly.
3. After inserting the front wedge of the camera, tighten the lock lever until the camera is completely fixed. At this time, rotate the lever until the camera is securely locked.



4. Make sure that the camera is fixed to the tripod mount plate completely and does not wobble.

#### **CAUTION**

Be sure to mount the camera on a tripod securely, or the camera might fall and such a carelessness is liable to cause an accident.

Unlock the camera by pressing the red button of the lock lever when dismantling the camera from a tripod.

#### **Reference**

Refer to the instruction manual of tripod for how to use a tripod.

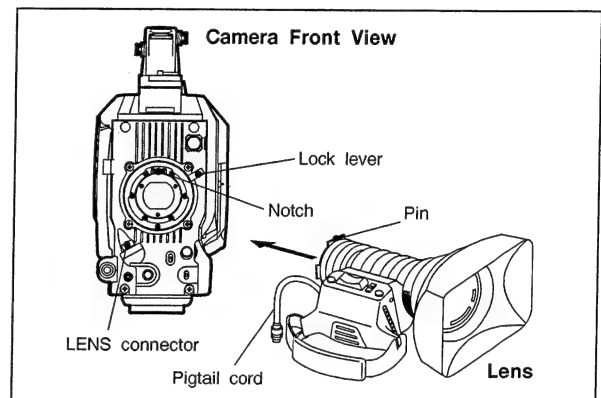
### 3.3 Mounting Lens

This section explains how to mount a B4 type lens to the camera.

#### **Reference**

Refer to the instruction manual of B3 type lens for how to mount a B3 type lens.

1. Place the camera in such a way that it points slightly upward to make it easy to mount the lens. And, remove the lens cap.
2. Fit the lens pin into the notch on the camera lens mount.
3. Turn the camera lock lever clockwise to secure the lens. Secure it firmly to eliminate any play.
4. Connect the pigtail cord to the LENS connector.



#### **CAUTION**

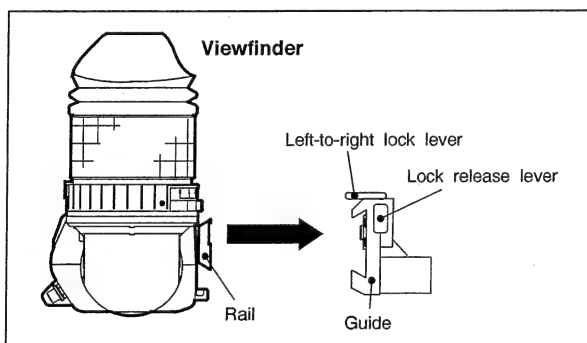
Do not take hold of the lens housing to hold the whole camera so that the weight of the whole camera bears down on the mount. An unreasonable amount of force applied to the mount will cause malfunctioning.

### 3.4 Mounting Viewfinder

#### ⚠ CAUTION

Be careful not to catch your fingers in the lock lever or guide-rail when mounting the viewfinder.

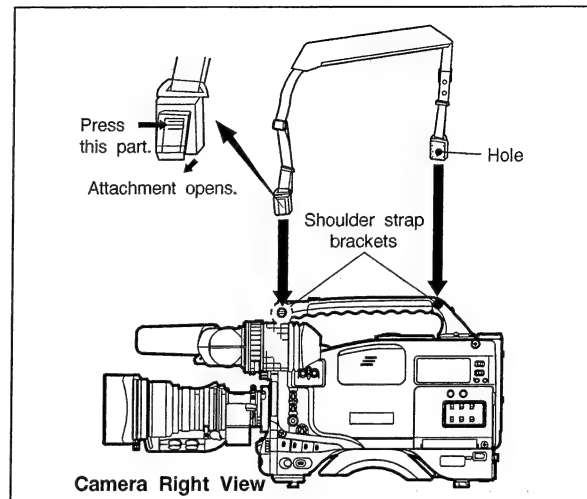
1. Set the POWER switch on the camera right side to "OFF".
2. Get up the eyepiece portion of the viewfinder.
3. Unlock by rotating the left-to-right lock lever on the camera front side counterclockwise.
4. From a side of the guide on the camera front side, insert the viewfinder rear rail and slide it until it clicks into position.  
When the lock is set, it clicks.
5. Set the viewfinder to the desired position, and lock it by rotating the left-to-right lock lever clockwise.



6. Connect the VF cable of the viewfinder to the VF connector on the camera left side.
7. Adjust the eyepiece angle so that the image on the viewfinder screen is visible.

### 3.5 Attaching Shoulder Strap

1. Press the top of each of the shoulder strap hook to open the attachment.
2. With the attachment now open, align the hole in the attachment with the camera shoulder strap bracket to attach the shoulder strap.



#### ⚠ CAUTION

When attaching the shoulder strap to the camera, check that the shoulder strap attachments are securely attached to the shoulder strap bracket. If they have not been securely attached, the camera may drop.

To disengage the shoulder strap, press the top of each of the shoulder strap hook to open the attachment and then press down slightly.

### 3.6 Connecting Power Supply

Power can be supplied to the camera by the following 2 ways.

- From the battery
- From the AC pack

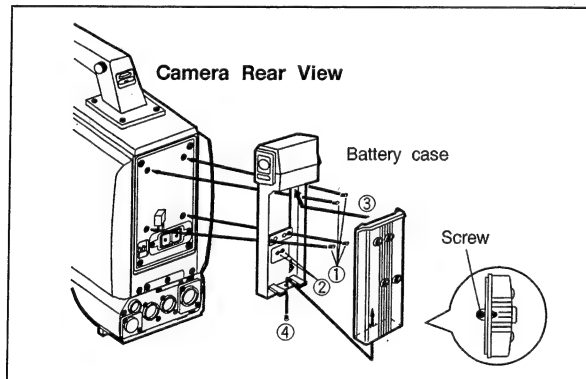
#### ⚠ CAUTION

Set the POWER switch to "OFF" before connecting the power supply with the camera. Otherwise, the equipment may be damaged.

#### (1) Supplying Power from Battery

##### [ Using NP-1B ]

1. Attach the battery case for NP-1B to the camera rear panel by following the steps described below.  
Have the battery case lid removed before proceeding.
  - (1) Attach the battery case with its lid removed to the camera using four screws.
  - (2) Tighten up the power contact screws.
  - (3) Insert the top part of the removed lid in the direction shown by the arrow.
  - (4) Align the hole at the bottom part of the lid (metal part) with the hole at the bottom part of the case and fix the lid using screws.

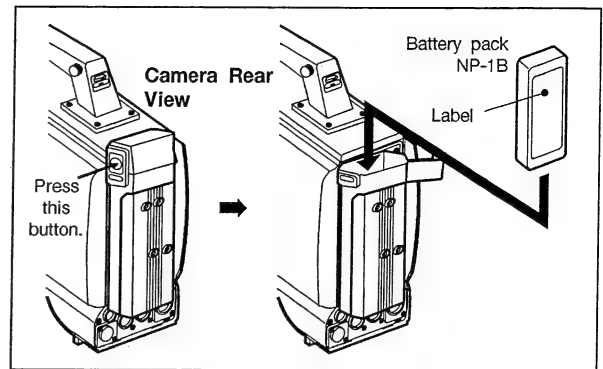


#### ⚠ CAUTION

Do not touch the power contact screws, which serve as electrodes, with bare hands since touching the electrode parts may cause corrosion.

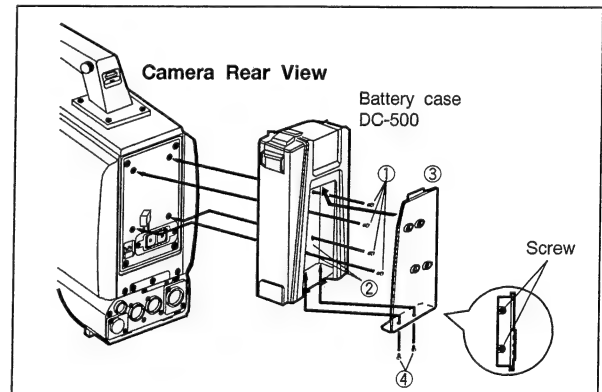
2. Insert the battery pack and close the top lid.

The top lid of the battery pack is opened by pressing the button on the left side.



##### [ Using BP-90A ]

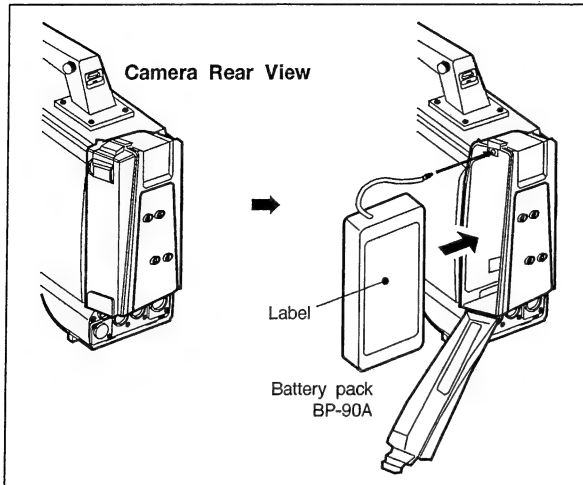
1. Attach the battery case DC-500 to the camera rear panel by following the steps described below.  
Have the battery case lid removed before proceeding.
  - (1) Attach the battery case with its lid removed to the camera using four screws.
  - (2) Tighten up the power contact screws.
  - (3) Insert the top part of the removed lid in the direction shown by the arrow.
  - (4) Align the holes at the bottom part of the lid (metal part) with the holes at the bottom part of the case and fix the lid using screws.



#### ⚠ CAUTION

Do not touch the power contact screws, which serve as electrodes, with bare hands since touching the electrode parts may cause corrosion.

2. Connect the battery pack plug to the terminal inside the battery case, and place the battery pack inside the case.



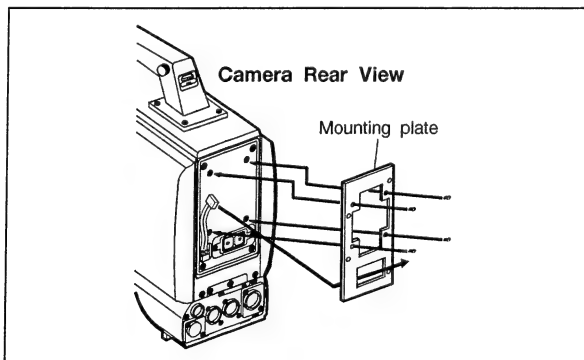
#### ⚠ CAUTION

Make sure that the POWER switch of the camera is set to "OFF" when plugging in or unplugging out of the battery pack. Otherwise, the equipment may be damaged.

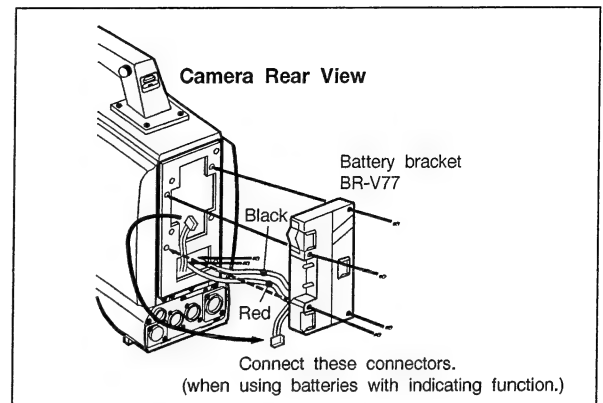
#### [ Using Intelligent Battery Made by ANTON/BAUER ]

1. Attach the mounting plate to the camera rear panel using four screws.

When attaching the plate, pass the connector on the camera rear panel through the hole in the plate before screwing it in place.



2. Screw the two cables of red and black which are attached to the battery bracket to the terminal on the camera rear panel, and install the battery bracket by using four screws after the connector on the camera rear panel is connected to the connector on the battery bracket.



#### Notice

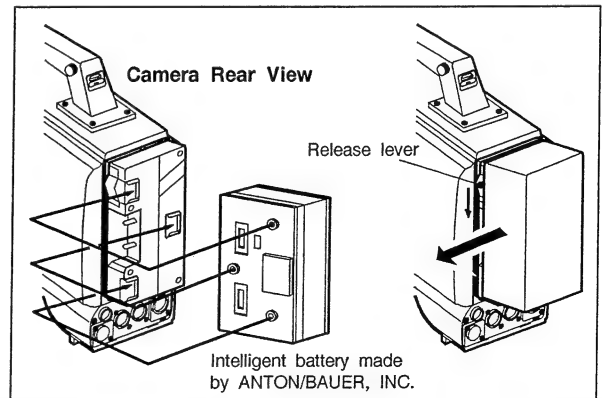
In case that a battery made by ANTON/BAUER without the remainder indicating function is used, don't connect the connector on the camera rear panel to the connector on the battery bracket. If these two connectors are connected, when a battery without the remainder indicating function is used, the BATT LED inside the viewfinder or the WARNING lamp on the camera right side may blink.

#### ⚠ CAUTION

When attaching the battery bracket, put the cables of the connected connectors inside the camera in such a way that they will not be pinched by the bracket before attaching the battery bracket. Take adequate care since the equipment may be damaged if these cables are pinched.

3. Insert the intelligent battery made by ANTON/BAUER as shown in the figure, slide it into place and secure.

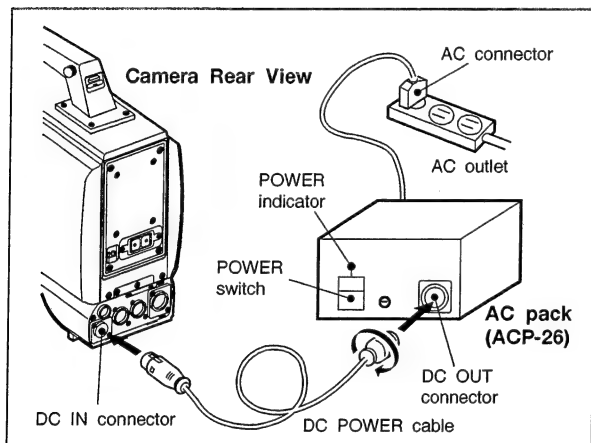
To remove the intelligent battery, while pressing the release lever on the battery bracket all the way down, slide the intelligent battery in the direction of the arrow.



## (2) Supplying Power from AC Pack

Power supply source for the camera is +12V (allowable range : +11V to +17V).

1. Connect the DC OUT connector of the AC pack to the DC IN connector of the camera with a DC POWER cable.
2. Put the AC connector of the AC pack into the AC outlet.
3. Set the POWER switch of the AC pack to "ON" (the POWER indicator lights up).
4. Setting the POWER switch of the camera to "ON" supplies power.



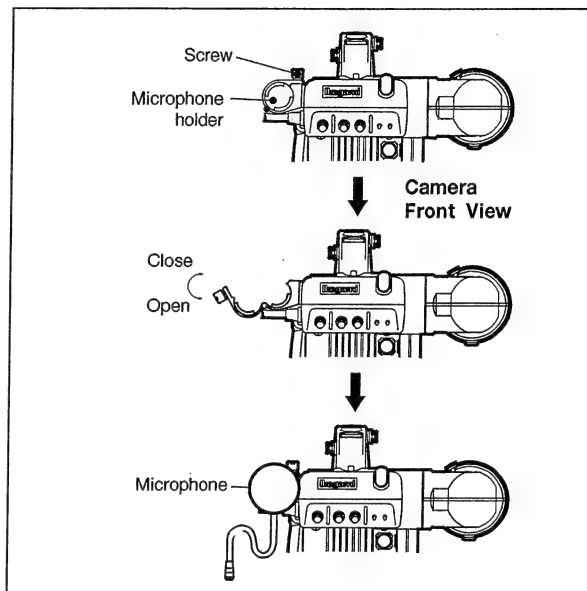
### Notice

When the DC POWER cable is connected to the DC IN connector on the camera rear side, the camera is automatically (mechanically) switched to accept power from the DC IN connector.

## 3.7 Mounting Microphone

### [ Mounting Front Microphone ]

1. Loosen the microphone holder screw to open the microphone holder.
2. Put the microphone on the opening microphone holder and tighten up the screw to secure.  
Mount it so that the part number on the top side comes upward.



3. Connect the microphone cable to the front microphone connector.
4. Set one of the AUDIO IN switches to "FRONT".

### ⚠ CAUTION

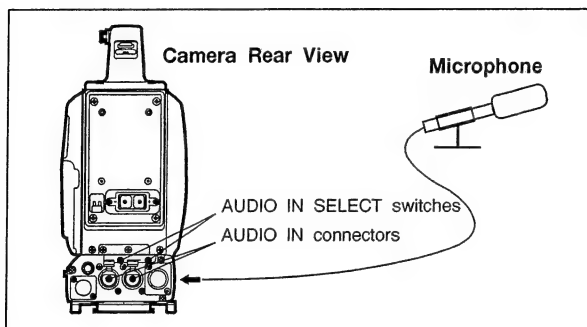
Concerning sound levels

Ensure that the volume is initially at a low level, and then increase it gradually to the appropriate level. Listening to sound at high volume levels may damage your eardrums.

### [ Connecting Rear Microphone ]

Two AUDIO IN connectors, for CH-1 and CH-2, are provided to enable two external microphones to be connected.

1. Connect the microphone cable to one of the AUDIO IN connectors on the camera rear side.
2. Set the AUDIO IN SELECT switch of the channel to which the microphone has been connected to "MIC".  
Set the AUDIO IN SELECT switch of the channel to which the phantom microphone has been connected to "+48V".



3. Set the AUDIO IN switch (in the VTR control panel on the camera right side) of the channel to which the microphone has been connected to "REAR".

#### ⚠ CAUTION

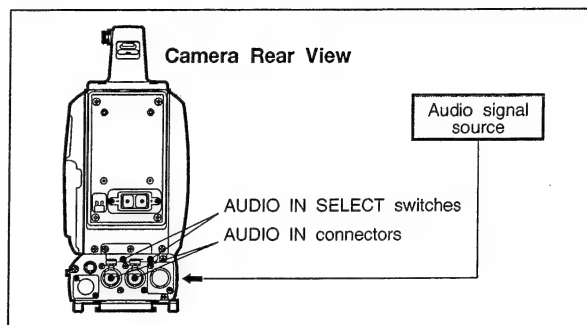
Concerning sound levels

Ensure that the volume is initially at a low level, and then increase it gradually to the appropriate level. Listening to sound at high volume levels may damage your eardrums.

### 3.8 Connecting Audio Line

Background music, sound effects or other sounds not available at the shooting location can be added as audio line signals to the AUDIO IN connectors.

1. Connect an audio signal source with the AUDIO IN CH-1 or CH-2 connector on the camera rear side.
2. Set the AUDIO IN SELECT switch (on the camera rear side) of the channel to which the audio signal source has been connected to "LINE".

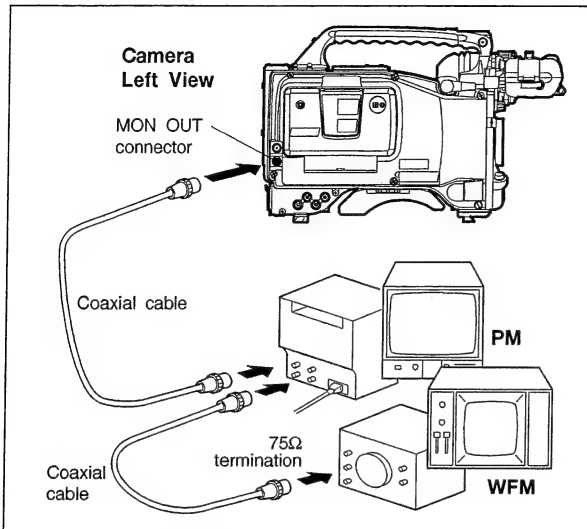


3. Set the AUDIO IN switch (in the VTR control panel on the camera right side) of the channel to which the audio signal source has been connected to "REAR".



### 3.9 Connecting Video Monitor

Connector a picture monitor (PM) and a waveform monitor (WFM) with the MON OUT connector on the camera left side using the coaxial cable as shown in the figure.



Signals (ENC, Y, R, G, B, R+G+B, R-G, B-G) selected by the camera menu ("MONITOR OUT") or the remote controller are output from the MON connector.

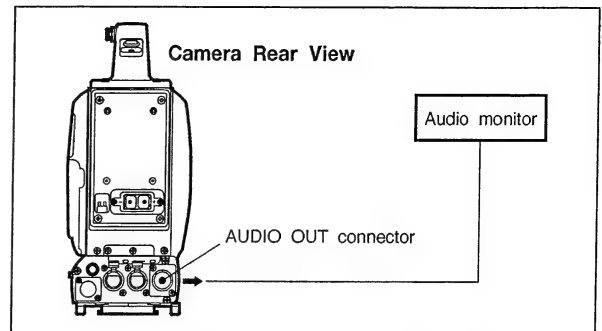
#### Reference

Refer to "4.14 Camera Menu" for how to make setting in the camera menu.

Only the ENC signal is output from the VIDEO OUT connector on the camera left side. The various markers and characters are not displayed.

### 3.10 Connecting Audio Monitor

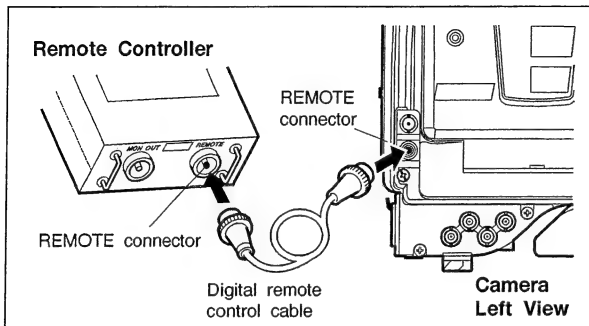
Audio signals are output from the AUDIO OUT connector on the camera rear side.



### 3.11 Connecting Remote Controller

Concerning remote controllers for this camera, RCP-11, RCP-50, RS-11 and RM-11 are available.

Connect the REMOTE connector on the remote controller with the REMOTE connector on the camera using the digital remote control cable. Connect each connector securely until a locking sound is heard.



#### [ Restrictions on Operation ]

When a remote controller has been connected, the remote controller's switches take precedence over the camera function switches and the following switches on the camera cease to function.

- GAIN SELECT switch
- OUTPUT SELECT switch
- AWB SELECT switch
- SHUTTER/SUP-V switch

For example, if the gain was first set to +6dB using the camera GAIN SELECT switch and then the remote controller was connected, and if the switch on the remote controller is used to set the gain to +12dB, the camera gain will be set to +12dB. Then if the remote controller is disconnected, the camera gain returns to its initial setting of +6dB. In this way, the remote controller takes precedence.

#### Notice

In order to provide each of the remote controllers with general-purpose capabilities, some switches not featured on this camera are provided. Check out which functions are enabled when any of the remote controllers are connected by referring to "4.15 Table of Remote Controller Operations".

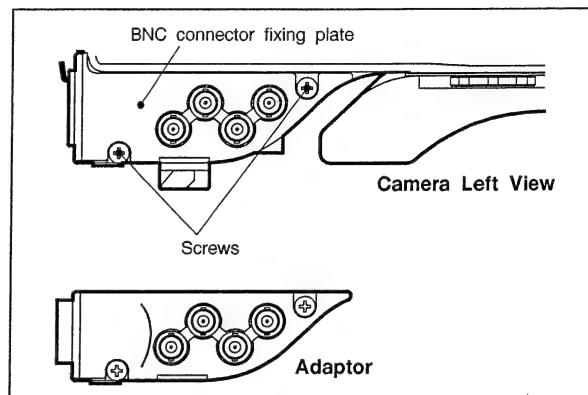
### 3.12 Mounting Adaptor

The optional VTR adaptor can output analog component signal to an external VCR.

The optional Y/C adaptor can also output analog Y/C signal to an external equipment.

#### CAUTION

When mounting the adaptor, be sure to set the POWER switch of the camera to "OFF" to avoid accidental shorts.



1. Remove the BNC connector fixing plate (2 screws) on the camera left side and disconnect the connectors inside.
2. Connect the disconnected connectors with the adaptor and fix it with the 2 screws.

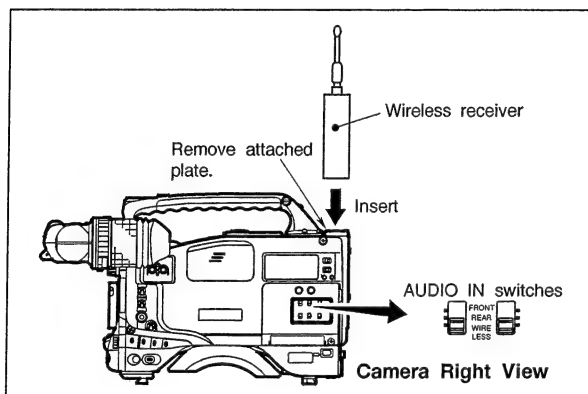
#### Notice

The VTR connector of the VTR adaptor is 26-pin type. Therefore, use 26-pin type VCRs (MII or  $\beta$  CAM 26-pin type).

### 3.13 Installing Wireless Receiver

When using a wireless microphone, install a wireless receiver (optional) as shown in the figure below.

1. Remove the cover of wireless receiver housing situated at the camera top side.
2. Insert a wireless receiver into the housing.
3. Fix it with the fixing screws.
4. Set one of the AUDIO IN switches in the VTR control panel to "WIRELESS".



#### Reference

For further information about how to attach and operate a wireless receiver, refer to its instruction manual.

### 3.14 Replacing Lithium Battery

This camera is storing various data by a lithium battery (CR2032). Therefore, the camera may not work well if it is not installed. But, the camera is shipped from the factory with a lithium battery already mounted.

#### [ When replacement is necessary ]

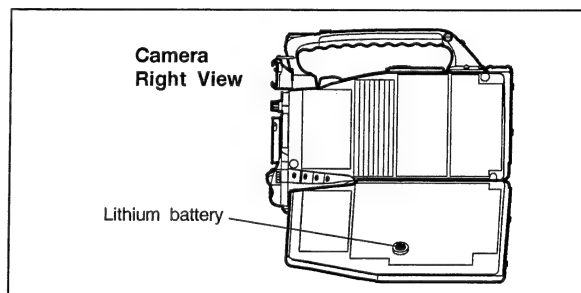
The lithium backup battery warning indication appears in the display window when the voltage is low. Replace with new lithium battery within 3 to 4 days after this indication appears.

Lithium batteries should last about 2 years in normal use. On the other hand, they should last about 1 year in the ClipLink mode.

#### [ Installation and Replacement ]

Read through the manual of lithium battery before installing or replacing. If you should make a mistake in handling lithium batteries, explosion may occur.

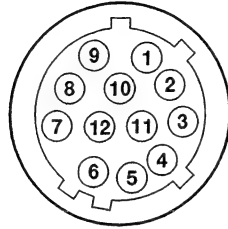
Be sure to use marketed lithium batteries CR2032. Other batteries may be removed due to vibration, etc.. If you can get CR2032, contact to our field office.



### 3.15 Connector Pin Function

#### [ LENS Connector ]

— Receptacle —



Insertion Side

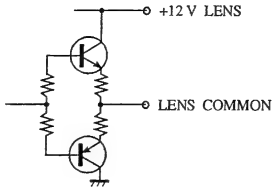
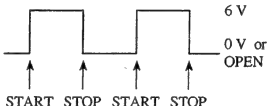
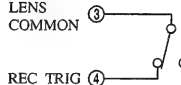
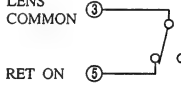

This connector is used to connect a lens (12-pin).

Lenses come in the B4 and B3 types, and their pin assignments are different.

**Body Side** : HR10A - 10R - 12SC

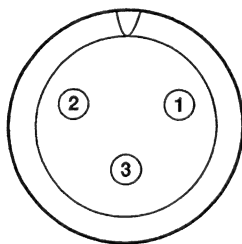
**Cable Side** : HR10 - 10P - 12P (12-pin male plug)

Pin No.		Name	Function	Direction	External Interface
B4	B3				
1	---	PB CONT	RETURN VIDEO ON/OFF signal RETURN ON : GND RETURN OFF : OPEN	IN	
2	---	REC TRIGGER	REC START/STOP control signal 	IN	
3	2	GND	LENS ground	GND	
4	9	AUTO +5V (B4) IRIS SERVO ON (B3)	Iris forced servo ON/OFF SERVO ON : +6V SERVO OFF : OPEN	OUT	
5	6	IRIS CONT	Lens iris control output B4 type F2.8 : +6.2V, F16 : +3.4V, CLOSE : +2.5V B3 type 6V (LENS COMMON) ±3V 6V +3V : CLOSE, 6V -3V : OPEN	OUT	
6	1	+12V LENS	+12V output for lens	OUT	200 mA MAX
7	---	IRIS FOLLOW	Iris position signal +3.4V (F16) to +6.2V (F2.8)	IN	
8	---	IRIS REMOTE /LOCAL	IRIS REMOTE/LOCAL (AUTO) signal REMOTE : +4.6V LOCAL (AUTO) : GND	OUT	
9	7	EXT ANS (B4) IE ON ANS (B3)	Internal extender ON/OFF signal EXT ON : GND EXT OFF : OPEN	IN	
10	11	ZOOM FOLLOW	Zoom position signal	IN	
11	12	FOCUS FOLLOW	Focus position signal	IN	
12	---	NC	---	---	

Pin No.		Name	Function	Direction	External Interface
B4	B3				
---	3	LENS COMMON	Common power output for lens (nominal 6V) Intermediate potential between +12V LENS and GND 	OUT	
---	4	REC TRIGGER	REC START/STOP control signal 	IN	
---	5	RET ON	RETURN VIDEO ON/OFF signal RETURN ON : 6V RETURN OFF : OPEN	IN	
---	8	IRIS AUTO/REM	Iris AUTO/REMOTE switching AUTO : OPEN REMOTE : GND	OUT	
---	10	DIASCOPE ON	Diascope (projector) ON/OFF ON : GND OFF : OPEN	IN	

## [ Front Microphone Connector ]

— Receptacle —



Insertion Side

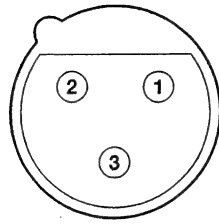
MIC input connector.

**Body Side** : MXR - 8RA - 3S**Cable Side** : MXR - 8PA - 3PB or equivalent  
(3-pin male plug)

Pin No.	Name	Function	Direction	External Interface
1	MIC (SHIELD)	MIC input shield	---	
2	MIC (HOT)	MIC (HOT) line When +48V phantom power is supplied : DC 48V	IN	
3	MIC (COLD)	MIC (COLD) line When +48V phantom power is supplied : DC 48V	IN	

## [ AUDIO IN Connectors ]

— Receptacle —



Insertion Side

MIC or LINE input connector.

Select the AUDIO IN SELECT switches on the camera rear side.

**Body Side** : HA16PRM - 3S**Cable Side** : XLR - 3 - 12C or equivalent  
(3-pin male plug)

## • MIC Input

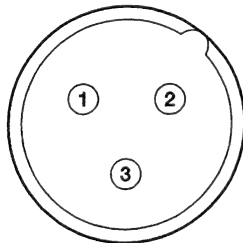
Pin No.	Name	Function	Direction	External Interface
1	MIC (SHIELD)	MIC input shield	---	
2	MIC (HOT)	MIC (HOT) line When +48V phantom power is supplied : DC 48V	IN	
3	MIC (COLD)	MIC (COLD) line When +48V phantom power is supplied : DC 48V	IN	

## • LINE Input

Pin No.	Name	Function	Direction	External Interface
1	LINE (SHIELD)	LINE input shield	---	
2	LINE (HOT)	LINE (HOT) line	IN	
3	LINE (COLD)	LINE (COLD) line	IN	

## [ AUDIO OUT Connector ]

— Receptacle —



Insertion Side

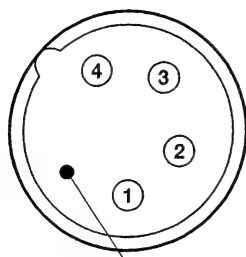
AUDIO output connector.

**Body Side** : HA16RD - 3P**Cable Side** : XLR - 3 - 11C or equivalent  
(3-pin female plug)

Pin No.	Name	Function	Direction	External Interface
1	MIC (SHIELD)	MIC output shield	---	
2	MIC (HOT)	MIC (HOT) line	OUT	
3	MIC (COLD)	MIC (COLD) line	OUT	

## [ DC IN Connector ]



— Receptacle —

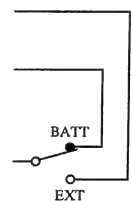


Insertion Side

SW

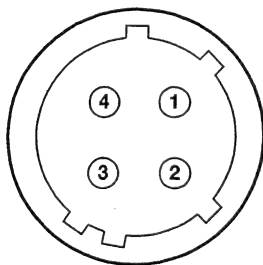
This connector has an internal switch.

 NC (Normally closed : Opens when connector is plugged in.)  
 NO (Normally open : Closes when connector is plugged in.)

Pin No.	Name	Function	Direction	External Interface
1	+12V RET	RET for +12V input	GND	
2	NC	---	---	
3	NC	---	---	
4	+12V IN	+12V input (+11V to +17V)	IN	
FRM	FRAME	Frame ground	GND	
NO	EXT +12V IN	External power input for switch		
NC	BATT (+)	Battery input for switch		
COM	+12V UNSW	Output for switching between EXT and BATT (switching to EXT when plugged in)		

## [ DC OUT Connector ]

— Receptacle —



Insertion Side

Used to supply power to external accessory (wireless receiver) (+12V, 100mA).

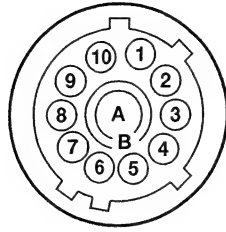
**Body Side** : HR10A - 7R - 4SC**Cable Side** : HR10A - 7P - 4P

(4-pin male plug)

Pin No.	Name	Function	Direction	External Interface
1	+12V RET	RET for +12V output	GND	
2	NC	---	---	
3	NC	---	---	
4	+12V OUT	+12V output (100mA)	OUT	

## [ REMOTE Connector ]

— Receptacle —



Insertion Side

Used to connect a remote controller.

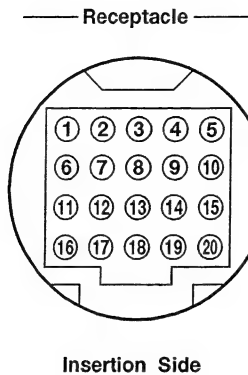
**Body Side** : HR10B - 10R - 10SC**Cable Side** : HR10B - 10P - 10PC

(10-pin male plug)

Pin No.	Name	Function	Direction	External Interface
1	HEAD CONT (+)	Digital control signal input from remote controller to camera	IN	Twisted pair cable
2	HEAD CONT (-)			
3	HEAD DATA (+)	Digital data output to remote controller from camera	OUT	Twisted pair cable
4	HEAD DATA (-)			
5	REM SENSE	ENABLE signal input from remote controller	IN	
6	NC	---	---	
7	TALLY	Tally signal input	IN	
8	NC	---	---	
9	+12V OUT	+12V power output for remote controller	OUT	
10	GND	GND for +12V OUT (pin 9)	GND	
A	MON OUT	Video signal output for monitor	OUT	
B	MON RET	GND for MON RET (pin A)	RET	



## [ VF Connector ]



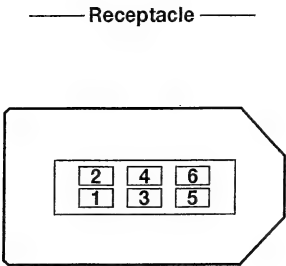
Used to connect the viewfinder.

**Body Side** : HR12 - 14RA - 20SC

**Cable Side** : HR12 type  
(20-pin male plug)

Pin No.	Name	Function	Direction	External Interface
1	VF +12V	+12V power output for VF	OUT	
2	VF +12V	+12V power output for VF	OUT	
3	VF +9V	+9V power output for VF	OUT	
4	GND	VF ground	GND	
5	GND	VF ground	GND	
6	VF VIDEO	VF video signal	OUT	
7	VIDEO RET	VF VIDEO (pin 6) signal ground	RET	
8	S CLK	Serial clock signal for VF control	OUT	
9	S WR	Write pulse signal for VF control	OUT	
10	S DATA	Serial data signal for VF control	OUT	
11	LED GND	Ground for indicators inside VF	GND	
12	ZEBRA	ZEBRA ON/OFF signal ZEBRA ON : GND ZEBRA OFF : OPEN	IN	
13	ZOOM POSITION	Zoom position signal	OUT	
14 1 20	NC	---	---	

[ DV OUT Connector ]



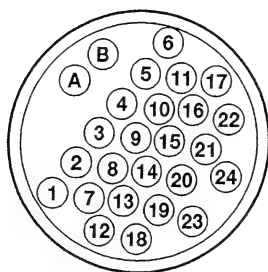
Used to connect an external VCR or the like.  
**Body Side** : 53462 - 0621  
**Cable Side** : 59233  
(6-pin male plug)

Insertion Side

Pin No.	Name	Function	Direction	External Interface
1	TP (NC)	---	---	
2	VG (GND)	Ground for DV	GND	
3	TPB*	Data/Control signal B*	IN/OUT	
4	TPB	Data/Control signal B	IN/OUT	
5	TPA*	Data/Control signal A*	IN/OUT	
6	TPA	Data/Control signal A	IN/OUT	

## [ VTR Connector (optional) ]

— Receptacle —



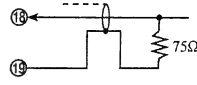
Insertion Side

Used to connect an external VCR or the like.

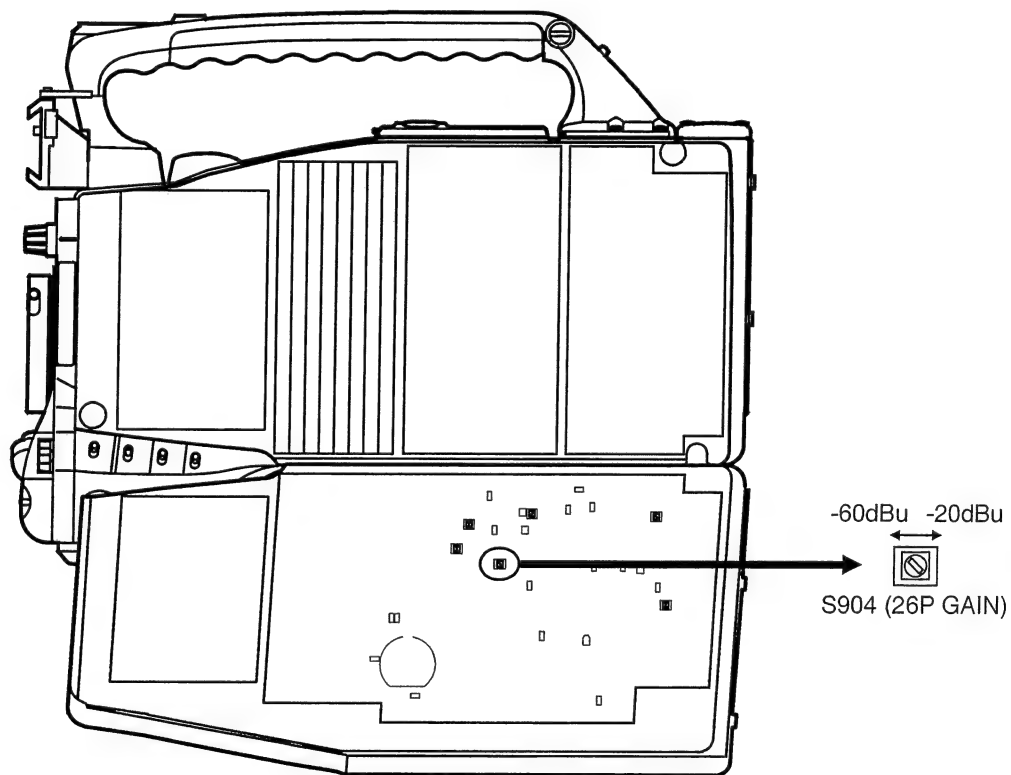
**Body Side** : JRC21BR - 26P**Cable Side** : JRC21BA - 26S

(26-pin female plug)

Pin No.	Name	Function	Direction	External Interface
1	VIDEO OUT	Video signal output	OUT	
2	GND	Ground for video signal output	GND	
3	GND	Ground for Y signal output	GND	
4	Y OUT	Y signal output 	OUT	
5	Pr OUT	Pr signal output 	OUT	
6	GND	Ground for Pr signal output	GND	
7	Pb OUT	Pb signal output 	OUT	
8	GND	Ground for Pb signal output	GND	
9	MIC (H)	MIC (H) line Signal level - 20 dBu / -60 dBu (*1) Zout = Low Z    Zin = High Z	OUT	
10	MIC (C)	MIC (C) line Signal level - 20 dBu / -60 dBu (*1) Zout = Low Z    Zin = High Z	OUT	
11	MIC SHIELD	Shield for MIC output	GND	
12	VTR START/STOP	VTR START/STOP control signal (0 V / 5 V)	OUT	
13	NC	---	---	
14	NC	---	---	
15	REC TALLY	REC TALLY signal input (0 V to 5 V)	IN	
16	VTR WARN	VTR WARN signal input (0 V to 5 V)	IN	

Pin No.	Name	Function	Direction	External Interface
17	CABLE SHIELD	Shield for cable	GND	
18	RET VIDEO	RET signal input from VCR	IN	
19	RET VIDEO GND	Ground for RET signal input from VCR	GND	
20	VTR SAVE	VTR SAVE signal output (0 V / 9 V)	OUT	
21	NC	---	---	
22	CF	Color frame pulse output	OUT	
23	NC	---	---	
24	NC	---	---	
A	+12V	+12V input for checking external VCR connection	IN	
B	+12V RET	Ground for +12V input for checking external VCR connection	RET	

\*1 Signal level selection for the MIC line

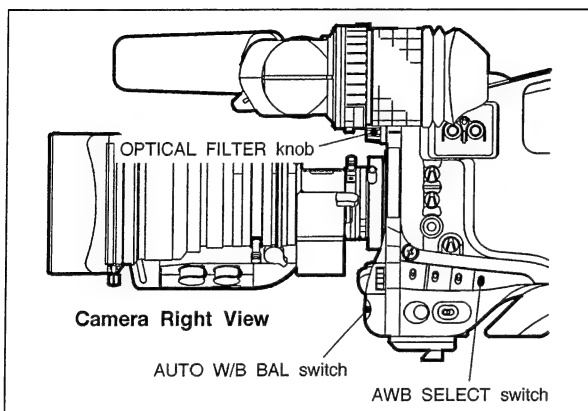


Camera Right View

## 4. OPERATIONS OF CAMERA SECTION

### 4.1 Auto White Balance and Auto Black Balance

Auto white balance (AWB) and auto black balance (ABB) are functions which automatically set the white and black level of the R, G and B signals.



#### [ Auto White Balance Execution ]

1. Use the AWB SELECT switch to select the memory (A or B) to store the execution result in.
  - **A** : Ach memory
  - **B** : Bch memory
  - **OFF** : Presetting (3200K) status. Auto white balance is not executed when the switch is set to this position.

If data is already stored in the channel A or B memory selected, it will be overwritten, thus the previously stored data will be erased.

2. Shoot a subject which contains something white. Make sure that the following conditions are satisfied.
  - The white object must fill at least 10% of the screen.
  - There must be no other subject with a higher level on the screen than that of the subject used to obtain the white level.
  - The video level of the subject used to obtain the white balance must be at least 30%.
3. Use the OPTICAL FILTER knob on the camera front side to set the optical filter which is suited to the subject's brightness and color temperature.
4. Set the lens iris in such a way that the video level is set to a suitable level. (For manual iris mode)
5. Press down the AUTO W/B BAL switch to "AWB". Auto white balance is now executed. Upon completion of auto white balance, "OK" appears on the viewfinder screen. If "NG" appears, the cause (CHG FILTER, etc.) is displayed. Check whether the external subject satisfies the conditions given in step 2 above and whether the filter setting is appropriate, and then repeat

the procedure starting with step 2.

#### **Notice**

Hunting may occur at automatic iris mode when a zoom lens with an automatic aperture function is used. In this case, adjust the aperture gain knob on the lens. For further details, refer to the instructions accompanied with the lens.

#### [ Auto Black Balance Execution ]

1. Press down the AUTO W/B BAL switch to "ABB". The lens iris closes automatically, and auto black balance is executed. The adjustment value is stored in the memory. Upon completion of auto black balance, "OK" or "NG" appears on the viewfinder screen. If "NG" appears, remove the cause and perform the execution procedure again.

#### **Notice**

The black balance (ABB) must be adjusted in the followings.

- when the camera is used for the first time.
- when the difference in the ambient temperature has changed significantly.

No adjustment is required in the following cases.

- when power is turned off.
- when the color temperature of the lighting has changed.

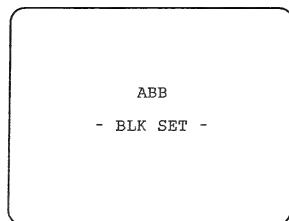
Adjust only the white balance (AWB) when the color temperature of the lighting has changed.

- When the iris is being operated manually, it will remain closed even after the black balance has been adjusted. Open the iris before resuming shooting.
- During auto black balance execution, flicker appears several times on the viewfinder screen. This is normal and not indicative of malfunctioning.
- To discontinue auto black balance, press down the AUTO W/B BAL switch to "ABB" again. The adjusted value is cleared, while the former state before auto white balance execution is set.

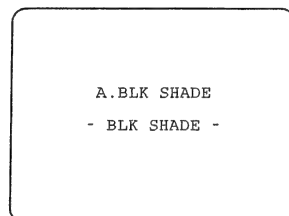
#### [ Auto Black Shading Execution ]

After adjustment by auto black balance, black shading adjustment can be automatically performed.

1. Press down the AUTO W/B BAL switch to "ABB" and continue pressing the switch. After the lens iris is automatically closed, black set adjustment is started. At this time, the following display appears on the viewfinder screen.



After completion of black set adjustment, black shading adjustment is started. The viewfinder screen display changes to "A.BLK SHADE" as shown below. At this time, you may release your hand from the AUTO W/B BAL switch.



After completion of auto black shading, "OK" or "NG" appears on the viewfinder screen. In case of "NG", the former state before auto black shading execution is set.

- To discontinue auto black shading, press down the AUTO W/B BAL switch to "ABB" again. The adjusted value is cleared, while the former state before auto black shading execution is set.

## 4.2 Selecting Shutter Speed

This camera comes with two shutter functions, the Preset Shutter whose speed has already been set and the Variable Shutter whose speed can be set to any value.

### Preset Shutter

Any of six speeds (1/100, 1/120, 1/250, 1/500, 1/1000 or 1/2000) can be set as the shutter speed.

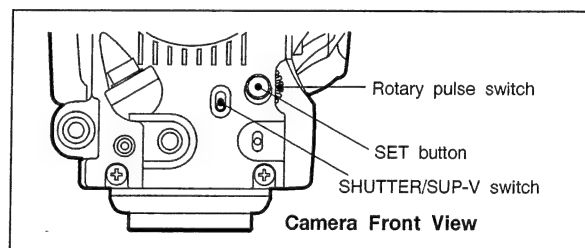
### Variable Shutter

Any shutter speed (NTSC : from 1/60.3 to 1/787, PAL : from 1/50.3 to 1/781) can be set.

The variable shutter function is effective when a person's golf swing frame by frame is shot or when a personal computer screen which is not synchronized with the TV is shot. If the shutter speed is set to the higher, high resolution scenes free of blur can be obtained even with the rapidly moving subjects which are shot during live on the spot coverage of sports events, for instance. However, the intervals which can be set increase in proportion as the shutter speed is raised.

### Notice

- The sensitivity drops in proportion as the shutter speed increases. This means that consideration must be given to ensure that the lighting conditions are satisfactory.
- When a remote controller has been connected, the remote controller switches take precedence over the camera function switches (when "SEMI REMOTE MODE" is set to "OFF" : refer to the camera menu). For details on operations using any of the remote controllers, refer to the instructions accompanied with the controller concerned.



1. Set "VF DISPLAY" of the camera menu to "1" or "2" so that characters appear on the viewfinder screen.
  - **OFF** : No characters are displayed.
  - **1** : Characters are displayed for about 2 seconds when a switch is operated.
  - **2** : Characters are displayed all the time (except during VCR recording).

### Reference

Refer to "4.14 Camera Menu" for how to make setting.

2. Set the SHUTTER/SUP-V switch to "ON".

3. Press the SET button and select the shutter mode.

The preset shutter speed, the variable shutter speed or the super-V mode is selected in turn.

4. Set the desired shutter speed by turning the rotary pulse switch.

While setting is in progress, the shutter speed characters blink.

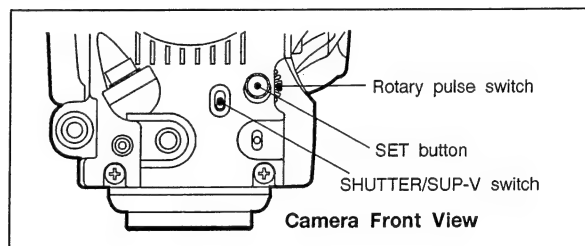
To turn off the shutter, set the SHUTTER/SUP-V switch to "OFF".

### 4.3 Improving Vertical Resolution (Super-V)

The Super-V is a function which improves the vertical resolution.

#### Notice

- Since the camera sensitivity drops in the super-V mode, take an appropriate lighting condition into consideration.
- When a remote controller has been connected, the remote controller switches take precedence over the camera function switches (when "SEMI REMOTE MODE" is set to "OFF" : refer to the camera menu). For details on operations using any of the remote controllers, refer to the instructions accompanied with the controller concerned.



1. Set "VF DISPLAY" of the camera menu to "1" or "2" so that characters appear on the viewfinder screen.
  - **OFF** : No characters are displayed.
  - **1** : Characters are displayed for about 2 seconds when a switch is operated.
  - **2** : Characters are displayed all the time (except during VCR recording).

#### Reference

Refer to "4.14 Camera Menu" for how to make setting.

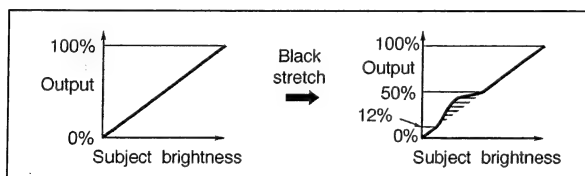
2. Set the SHUTTER/SUP-V switch to "ON".
3. Press the SET button and select the super-V mode.  
The preset shutter speed, the variable shutter speed or the super-V mode is selected in turn.

To turn off the super-V, set the SHUTTER/SUP-V switch to "OFF".

## 4.4 Improving Video Low Brightness Reproduction (Black Stretch/Black Press)

### [ Black Stretch ]

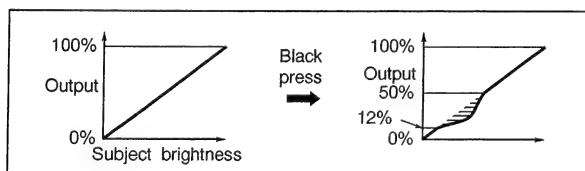
The human eyes have a much greater dynamic range than a TV camera. Even with subjects whose contrast is significant, it can see the details in both the light and dark parts to a certain extent. On the other hand, when the iris of a TV camera is focused on the light parts of a subject, the dark parts tend to turn black, and it is difficult to reproduce the subject as a clear image. The Black Stretch is a function which raises only the low-brightness parts of the video level, in order to minimize the blackening of the dark parts of the subject.



Since only the luminance signals are processed with the black stretch, the color difference signals are not affected at all as they are when the gamma curve is varied. In other words, the blackening of the dark parts of the subject is minimized while the color reproduction is not affected.

### [ Black Press ]

By the Black Press, the video level of the dark parts can be decreased. The black press function is available in a means of making light parts conspicuous and dark parts inconspicuous. When a picture or a photo is shot, the undesired black level reflected by lighting can be lowered in order to reproduce the black part naturally.



### [ Black Stretch/Black Press Operation Methods ]

There are two methods to set the black stretch/black press; by using the camera menu and remote controllers. One of 6 values (-7%, -5%, -3%, +3%, +5% or +7%) can be set.

#### Reference

- For details on the setting method by the camera menu, refer to "4.14 Camera Menu".
- For details on the setting method by remote controllers, refer to the instructions accompanied with the controller concerned.

## 4.5 Enhancing Screen Detail (DTL)

### [ Diagonal DTL ]

Conventional analog cameras divide the DTL edge signals into vertical and horizontal components and generate them separately. The digitalization of the DTL circuit makes it possible to create the edge signals even from the diagonal components of the video signals. By use of this Diagonal DTL, images with a satisfactory resolution can be produced even with minimal detail enhancement.

The function ON/OFF operation can be performed in two ways; by making selection on the camera menu screen or by operating remote controllers (RM-11 cannot be used).

#### Reference

- For details on the setting method by the camera menu, refer to "4.14 Camera Menu".
- For details on the setting method by remote controllers, refer to the instructions accompanied with the controller concerned.

### [ Skin DTL ]

This function suppresses the amount of the edge signals in the skin areas of images while leaving the DTL setting for the entire screen unchanged. To achieve the desired effect, it is important to ensure that the Skin DTL does not affect clothing and colors appearing immediately next to the skin. As for operation methods, there are three ways; by using the SKIN DTL button on the camera right side (ON/OFF), the camera menu (ON/OFF) and remote controllers (RM-11 cannot be used).

#### Reference

- For details on the setting method by the camera menu, refer to "4.14 Camera Menu".
- For details on the setting method by remote controllers, refer to the instructions accompanied with the controller concerned.

#### Notice

- It is recommended that a standard chart be used or that the skin areas of a person be shot in the actual scene for the setting.
- It is possible to automatically set skin color hue (hue applied with the skin DTL function) by AHD (Auto Hue Detect). Refer to "4.9 AHD (Auto Hue Detect)" for details on the AHD.



### [ Soft DTL ]

When a subject with a significant difference in its black and white shades, that is to say, with its contrast significant is shot, glare may be produced in light sections. This phenomenon is particularly evident in catch lights which are reflected in the eyes of people, in checkered patterns, etc. The Soft DTL is a function which reduces this unpleasant glare. Signals with a high contrast have a correspondingly high edge level, and this is cause of the glare. The soft DTL function uses a limiter to limit the edge level to suppress the glare in the light areas.

As for operation methods, there are two ways; by using the camera menu (ON/OFF) and remote controllers (RM-11 cannot be used).

#### Reference

- For details on the setting method by the camera menu, refer to "4.14 Camera Menu".
- For details on the setting method by remote controllers, refer to the instructions accompanied with the controller concerned.

### [ Changing DTL Boost Frequency ]

Depending on the subject, very finely detailed images are sometimes required. At this time, the DTL boost frequency can be selected to produce images in greater detail. The center of this frequency can be switched in 8 steps.

The center of this frequency is different with models.

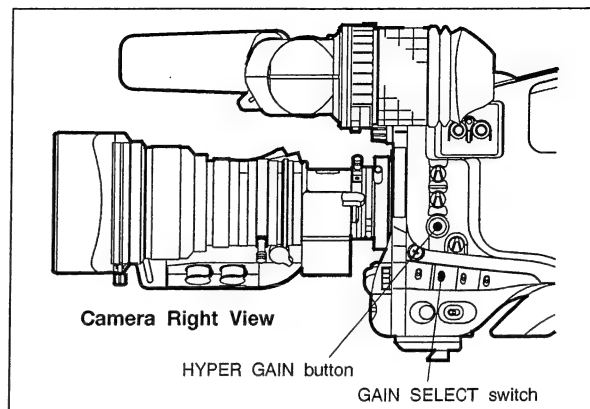
- HL-DV7W(16:9) : 3.24MHz to 9.00MHz
- HL-DV7W(4:3) : 2.97MHz to 6.84MHz
- HL-DV5(4:3) : 2.97MHz to 6.84MHz

#### Reference

Refer to the instructions accompanied with a remote controller for how to operate.

## 4.6 Selecting Gain

A subject being shot naturally appears at different brightness levels. It will appear darker at dusk or on a cloudy day and too bright under the midday sun. In this case, images corresponding to the brightness of the subject can be shot if the camera gain (sensitivity) is switched.



### [ Using Camera to Switch Gain ]

Any gain values can be set in the "MID" and "HIGH" positions of the GAIN SELECT switch on the camera right side. The gain can then be selected between the two and images can be shot to suit the operating conditions. The gain can be selected from among the -3, +3, +6, +9, +12, +18 or +30 dB settings on the camera menu screen (Any two of the above values can be set for "MID" and "HIGH" so long as the MID setting is lower than the HIGH setting). The regular position of the GAIN SELECT switch is "0".

#### Reference

Refer to "4.14 Camera Menu" for how to make setting.

### [ Using Hyper Gain ]

When dark parts are temporarily shot in normal shooting, clear images could not be obtained due to lack of gain. In this case, this hyper gain function is available.

Press the HYPER GAIN button on the camera right side for more than 2 seconds to set the hyper gain mode.

However, the gain value at this time is as follows according to the value set for "HYPER GAIN" of "MID/HIGH GAIN MODE" on the camera menu.

- +30dB : +30dB
- +36dB : +36dB
- +42dB : +42dB
- +48dB : +48dB
- SEL (30-36)dB : Selection of +30dB or +36dB
- SEL (30-42)dB : Selection of +30dB, +36dB or +42dB
- SEL (30-48)dB : Selection of +30dB, +36dB, +42dB or +48dB

When “SEL (30-36dB)”, “SEL (30-42dB)” or “SEL (30-48dB)” is set, the gain can be switched inside its range. Pressing the HYPER GAIN button with the value blinking on the viewfinder screen switches the hyper gain value.

To return to the normal gain mode, press the HYPER GAIN button once again.

#### Notice

When the hyper gain is used, gain sensitivity will rise but noise component will increase.

Pressing this button for more than 2 seconds is necessary in order to prevent wrong operation.

#### [ Using Remote Controller to Switch Gain ]

The RM-11 can be used only to switch the gain to the “MID” or “HIGH” value which has been set by the camera.

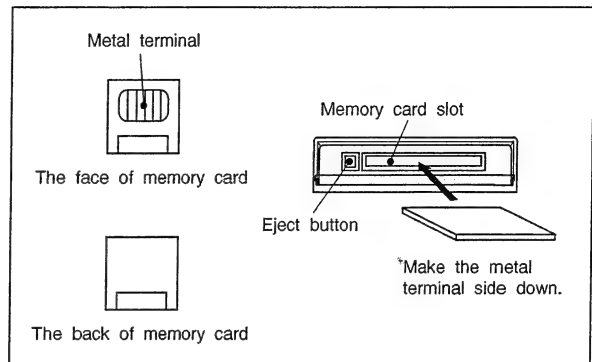
#### Notice

When a remote controller has been connected, the remote controller switches take precedence over the camera function switches (when “SEMI REMOTE MODE” is set to “OFF” : refer to the camera menu). For details on operations using any of the remote controllers, refer to the instructions accompanied with the controller concerned.

## 4.7 Using Memory Card

Camera settings can be saved and loaded using memory cards (Smart Media™). The Save function saves camera settings in a memory card. The Load function loads the camera settings saved in the memory card.

Take care of the front and back sides of memory card before inserting it into the memory card slot on the camera left side.



#### Reference

Operations of the camera menu is necessary here. Refer to “4.14 Camera Menu” for how to make setting.

MEMORY CARD		
QUIT		
LOAD FILE	(	)
LOAD DATA	SCENE1-8	
LOAD (->CAMERA)		
SAVE FILE	(	)
SAVE DATA	SCENE	
SAVE (->M.CARD)		
M.CARD NAME	(	)

#### [ Saving Camera Settings in Memory Card ]

1. Perform various camera settings.
2. Insert a memory card in the memory card slot.
3. While pressing the VF CHAR button for more than 2 seconds, press the SET button to display the “MEMORY CARD” menu of the maintenance menu (2/3).
4. Set the name of a file to be saved at “SAVE FILE”.  
Set any name consisting of eight or less characters (refer to [ Naming File to Be Saved ] below).
5. Select and set data to be saved at “SAVE DATA”.
  - LENS : lens files No.1 to No.8
  - REFERENCE : reference file
  - SCENE : scene files No.1 to No.8
  - SNAP SHOT : snap shot file
  - ALL DATA : all data
6. Select “SAVE (->M.CARD)” and press the SET button when “EXECUTE” is displayed.  
“SAVING . . .” will be displayed.  
Saving is completed when “COMPLETED” is displayed.  
If “CANCEL” is selected and set, data saving is cancelled.

**Notice**

When "SAVE (->M.CARD)" is executed by setting the same file name as that already existing in the memory card, "FILE ALREADY EXIST" is displayed.

To overwrite the existing file, select and set "EXECUTE". If the file is not to be overwritten, select and set "CANCEL", change the file name at "SAVE FILE", and execute "SAVE (->M.CARD)" again.

7. Press the eject button and pull out the memory card.

**⚠ CAUTION**

While "SAVING . . ." is displayed, as data is being saved in the memory card, never take the memory card out of the memory card slot, or the data of the memory card and the memory card itself may damage.

**[ Loading Camera Settings Saved in Memory Card to Camera ]**

1. Insert a memory card in the memory card slot.
2. While pressing the VF CHAR button for more than 2 seconds, press the SET button to display the "MEMORY CARD" menu of the maintenance menu (2/3).
3. Select and set a file to be loaded at "LOAD FILE".  
If the file does not exist in the memory card, "NO FILE" is displayed.
4. Select and set data in the file at "LOAD DATA".
  - LENS1-8 : lens file NO.1 to NO.8
  - LENS1 : only lens file NO.1
  - LENS2 : only lens file NO.2
  - LENS3 : only lens file NO.3
  - LENS4 : only lens file NO.4
  - LENS5 : only lens file NO.5
  - LENS6 : only lens file NO.6
  - LENS7 : only lens file NO.7
  - LENS8 : only lens file NO.8
  - REFERENCE : reference file
  - SCENE1-8 : scene file NO.1 to NO.8
  - SCENE1 : only scene file NO.1
  - SCENE2 : only scene file NO.2
  - SCENE3 : only scene file NO.3
  - SCENE4 : only scene file NO.4
  - SCENE5 : only scene file NO.5
  - SCENE6 : only scene file NO.6
  - SCENE7 : only scene file NO.7
  - SCENE8 : only scene file NO.8
  - SNAP SHOT : snap shot file
  - ALL DATA : all saved data
  - MENU DATA : data for menu settings
  - VF DATA : data for viewfinder settings

**Notice**

Data which can be set at "LOAD DATA" differ according to the setting of "SAVE DATA" in data saving in the memory card.

- To load data from a file set to "LENS" at "SAVE DATA", the following items can be set; LENS1-8, LENS1, LENS2, LENS3, LENS4, LENS5, LENS6, LENS7, LENS8
- To load data from a file set to "REFERENCE" at "SAVE DATA", the following item can be set; REFERENCE
- To load data from a file set to "SCENE" at "SAVE DATA", the following items can be set; SCENE1-8, SCENE1, SCENE2, SCENE3, SCENE4, SCENE5, SCENE6, SCENE7, SCENE8
- To load data from a file set to "SNAP SHOT" at "SAVE DATA", the following items can be set; REFERENCE, SCENE1-8, SCENE1, SCENE2, SCENE3, SCENE4, SCENE5, SCENE6, SCENE7, SCENE8, SNAP SHOT
- To load data from a file set to "ALL DATA" at "SAVE DATA", the following items can be set; LENS1-8, LENS1, LENS2, LENS3, LENS4, LENS5, LENS6, LENS7, LENS8, REFERENCE, SCENE1-8, SCENE1, SCENE2, SCENE3, SCENE4, SCENE5, SCENE6, SCENE7, SCENE8, SNAP SHOT, ALL DATA, MENU DATA, VF DATA

When a file stored by a different format at "LOAD FILE" is selected, "DIFF DATA" is displayed and "LOAD DATA" cannot be set.

5. Select "LOAD (->CAMERA)", and press the SET button when "EXECUTE" is displayed.  
"LOADING . . ." is displayed.  
When "COMPLETED" is displayed, loading has completed.  
When "ALL DATA" is set at "LOAD DATA", "CAMERA RESTART" is displayed after "COMPLETED", and the camera is restarted.  
When "CANCEL" is selected and set, data loading is cancelled.

6. Press the eject button and pull out the memory card.

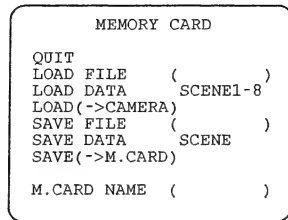
**⚠ CAUTION**

When camera settings saved in a memory card are loaded, all previous camera settings will be erased, and the settings saved in the memory card will be set. It is recommended that the current camera settings be saved in the memory card before loading.

While "LOADING . . ." is displayed, as data is being loaded from the memory card to the camera, never take out the memory card from the memory card slot or the data of the memory card and the memory card itself may damage.

**[ Naming File to Be Saved ]**

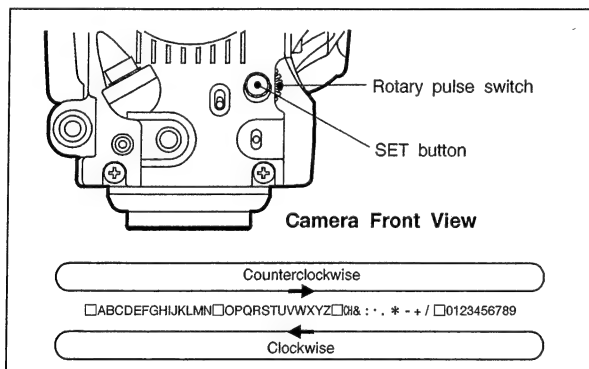
Any file name can be given to a file to be saved in the memory card. Up to 8 characters can be entered for the file name. However, if spaces are entered in the middle of the file name, characters entered after these spaces will not be set as part of the file name.



1. Select "SAVE FILE" and press the SET button.  
"□□□□□□□□" is displayed in the parentheses.
2. Press the SET button again to switch to the character input mode.
3. Select the desired character using the rotary pulse switch, and then press the SET button to set the character in the parentheses.
4. When all the characters in the parentheses have been set, the character input mode will be complete and the file name will be set.

If the file name is less than eight characters, be sure to enter blanks so that the file name becomes eight characters. If the file name is not eight characters long, the character input mode will not end.

Characters will switch as shown in the following diagram when the rotary pulse switch is rotated.

**Notice**

File names already existing in the memory card can be used.

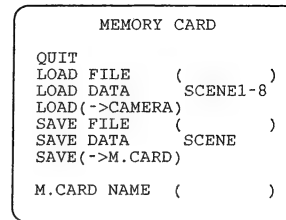
For example, it is assumed that an existing file name is "CAM-2" and a name of a file to be saved is "CAM-3". When "□□□□□□□□" is displayed in the parentheses, select "CAM-2" by rotating the rotary pulse switch and press the SET button to switch to the character input mode. Then, "C" will blink. Next, press the SET button four times to blink "2". Next, select "3" by rotating the rotary pulse switch and press the SET button. On top of that, press it three times to set the

file name.

"CAM-2" and "CAM-3" files will exist in the memory card.

**[ Naming Memory Card ]**

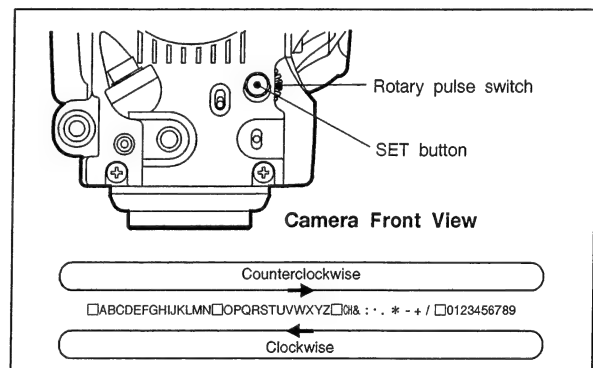
Memory cards can be named.



1. Select "M.CARD NAME" and press the SET button.  
The blinking cursor moves and the character input mode is set.
2. Select the desired character using the rotary pulse switch, and then press the SET button to set the character in the parentheses.
3. When all the characters in the parentheses have been set, the character input mode will be complete and the memory card name will be updated.

If the name is less than eleven characters, be sure to enter blanks so that the name becomes eleven characters. If the name is not eleven characters long, the character input mode will not end.

Characters will switch as shown in the following diagram when the rotary pulse switch is rotated.

**Notice**

When an already named memory card is inserted, the name is indicated. When a memory card whose name is not set is inserted, "--NO NAME--" is indicated. When any memory card is not inserted, "--NO CARD--" is indicated.

**[ Precautions on Use of Memory Card ]**

- Do not use any memory card saving camera settings for other equipment (computer, etc.) as this may disable loading of the camera settings.
- Use specified memory cards.

- Before taking out a memory card from the memory card slot, make sure that data is not being saved or loaded or the memory card data and the memory card itself may damage.

**Notice**

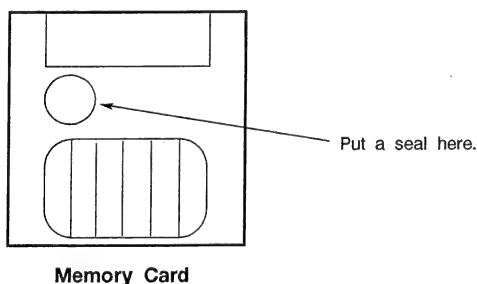
If an error occurs during saving or loading, the error message will be displayed. The following shows the error messages displayed and their meanings.

Error Message	Explanation
CARD INSERT ERROR !	No memory card is in the memory slot.
CARD ERROR !	The memory card cannot be used.
ACCESS ERROR !	Error occurred during the saving or loading of the memory card
! DIFFERENT TYPE DATA	Data format of the appointed file is different.
FILE ALREADY EXIST	The set file name already exists.
FILE CREATE ERROR !	The file cannot be made.
FILE DATA ERROR !	Data in the file include an error.
FILE NOT FOUND !	The file was not found.
NOT SAVE DATA FOR CAMERA	It is not data stored with a camera.

**Notice**

Round seals attached to memory cards are for write-protector. Putting the seal on a memory card as shown in the figure prevents data from being overwritten. Be sure to use the attached seal.

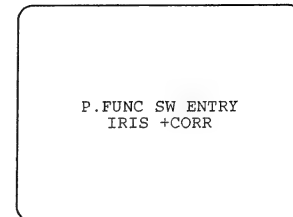
Do not dirty and wet write-protector seals and terminal sides.



## 4.8 Assigning Function to P.FUNC Button

A function frequently used by camera operators can be assigned to this button.

1. When the P.FUNC button is pressed continuously, the functions which can be assigned appear on the viewfinder screen.



2. Select one of the functions using the rotary pulse switch. The following functions can be set to the P.FUNC button.

- SCENE FILE 1 to 8 (Calling scene files 1 to 8)
- SOFT DTL (Soft DTL ON/OFF)
- BLK STR +7% (Black stretch +7% ON/OFF)
- BLK STR +5% (Black stretch +5% ON/OFF)
- BLK STR +3% (Black stretch +3% ON/OFF)
- BLK PRESS -3% (Black press -3% ON/OFF)
- BLK PRESS -5% (Black press -5% ON/OFF)
- BLK PRESS -7% (Black press -7% ON/OFF)
- AUTO KNEE (Auto knee ON/OFF)
- COLOR TEMP (Electrical temperature filter 5600K ON/OFF)
- IRIS ++CORR (Opposite light correction of 2 aperture in auto iris mode)
- IRIS +CORR (Opposite light correction of 1 aperture in auto iris mode)
- ASPECT (Switching of aspect ratio)
- \* only HL-DV7W

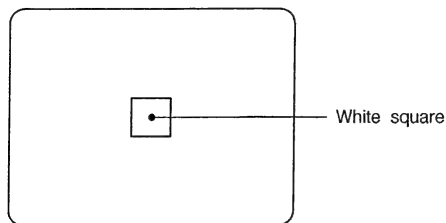
3. Set the function by pressing the SET button.

After setting, press the P.FUNC button to turn on or off the assigned function.

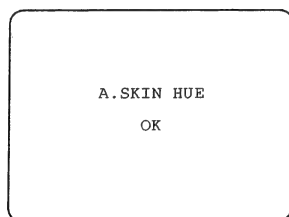
### 4.9 AHD (Auto Hue Detect)

The AHD is a function which automatically detects and sets the hue for applying the skin DTL function.

1. Press the SKIN DTL button continuously to display the square window on the viewfinder screen.



2. Align a subject whose hue is to be applied with the skin DTL function to the window.
3. Press the SKIN DTL button.  
"A.SKIN HUE OK" is displayed and the hue of the subject on the window is set for the skin DTL function.



After setting, press the SKIN DTL button to turn on or off the skin DTL function for the hue set.

#### Notice

No operation erases the square window for the AHD about 10 seconds later and then the AHD operation is cancelled.

#### Reference

Refer to "4.5 Enhancing Screen Detail (DTL)" for details on the skin DTL.

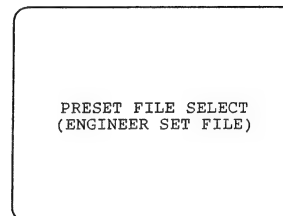
### 4.10 Initializing Camera Settings

The settings of the camera level adjustment and the camera menu can be reset to the factory settings.

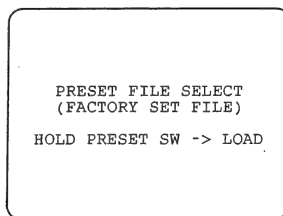
1. Continuously press the RESET button using a thin sharp tip such as the tip of a pen.

The following message is displayed on the viewfinder screen.

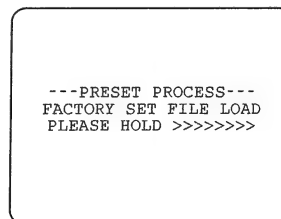
Not pressing the RESET button again while the message is displayed erases the message about 10 seconds later and cancels initialization.



2. Rotate the rotary pulse switch on the camera front side, select "FACTORY SET FILE" and press the SET button.  
The following message is displayed.  
Selecting "CANCEL" and then pressing the SET button will cancel initialization.  
Not pressing the RESET button again while the message is displayed erases the message about 10 seconds later and cancels initialization.



3. Press the RESET button again.  
The following message is displayed and file reading starts.  
While "PLEASE HOLD" is displayed, continue pressing the RESET button. Releasing the RESET button while "PLEASE HOLD" is displayed displays "STOP" and cancels initialization.



When reading completes, the following message is displayed. Next, "CAMERA RESTART" is displayed and then the camera restarts.

The settings will be set back to the factory settings.

FACTORY SET FILE LOAD  
COMPLETED

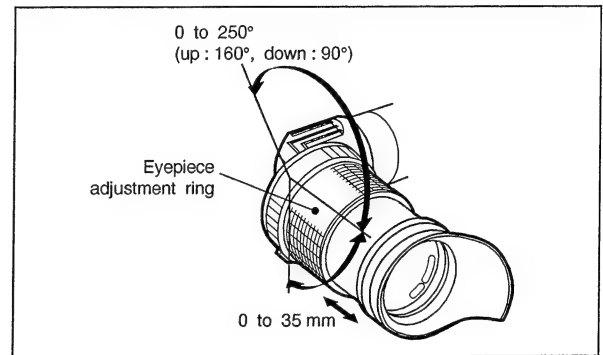
## 4.11 Operating Viewfinder

### [ Adjusting Angle and Position ]

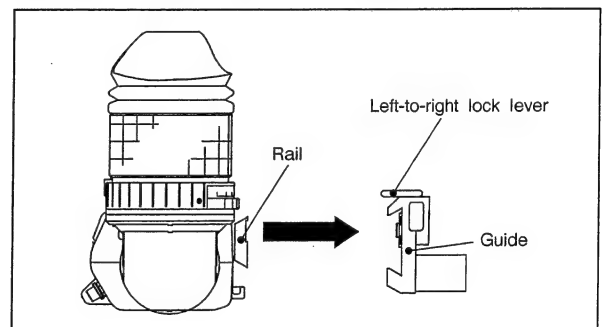
The eyepiece can be shifted so that you can get the most comfortable eye cup position. In addition, the eyepiece angle can be adjusted in accordance with the camera angle.

The eyepiece can be rotated by 160 degrees upwards and 90 degrees downwards.

Moreover, the eyepiece length can be adjusted back and forth in a range of 35mm.

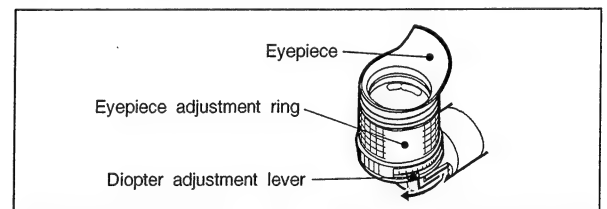


Loosening the left-to-right lock lever of the camera allows the viewfinder position to shift left and right.



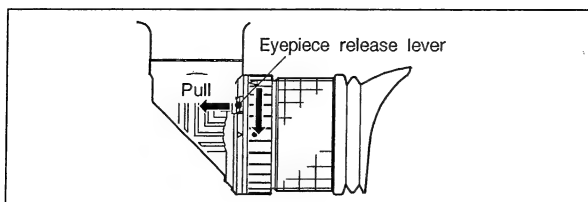
### [ Diopter Adjustment ]

Holding down the diopter adjustment lever and sliding it allows the viewfinder images to be seen more clearly.

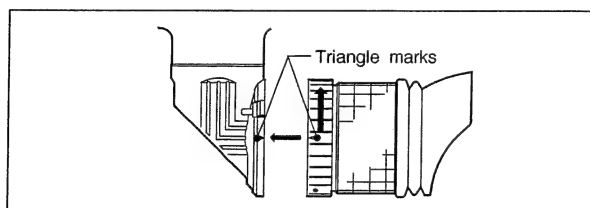


**[ Removing and Attaching Eyepiece ]****• Removing Eyepiece**

Take hold of the eyepiece and while pulling out the eyepiece release lever, turn the eyepiece in such a way as to align the two triangle marks.

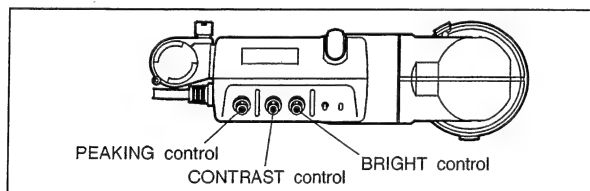
**• Attaching Eyepiece**

Align the two triangle marks, insert and turn the eyepiece until it clicks into position.

**[ Screen Adjustment ]**

If the viewfinder image is not clear or if the image outlines are to be slightly more enhanced, use the viewfinder controls to make adjustments.

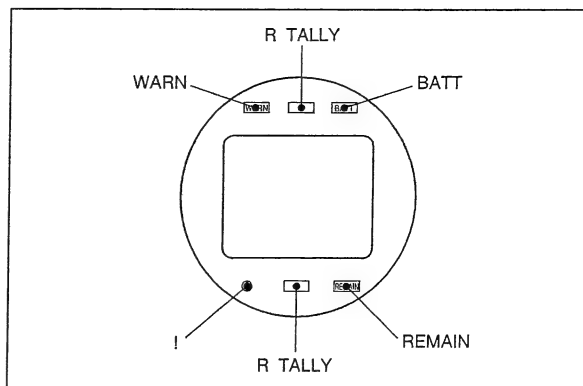
- PEAKING control : adjusts the image outlines.
- CONTRAST control : adjusts the image contrast.
- BRIGHT control : adjusts the image brightness.

**[ Viewfinder Indications ]**

In addition to the LED indicators, marker and character displays are also provided inside the viewfinder.

**• LED Indicators**

- WARN : Lights up when any trouble has occurred.
- R TALLY : Light up during recording. (upper, lower)
- BATT : Lights up when the battery voltage has fallen below the setting.
- ! : Lights up when the camera settings are not the standard settings.
- REMAIN : Lights up when there are less than 2 minutes of tape remaining, and blinks when less than 1 minute remains.

**Notice**

"!" lights up in the following settings.

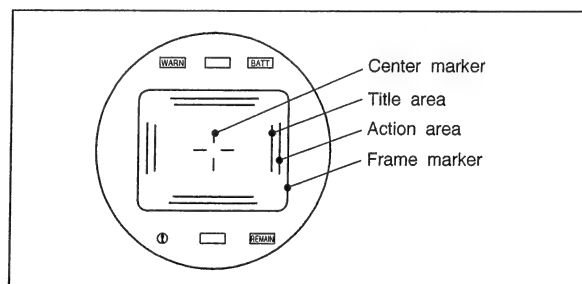
- GAIN SELECT switch : except "0dB"
- SHUTTER/SUP-V switch : "ON"
- AWB SELECT switch : "OFF"
- Lens EXTENDER SELECT switch : "ON"
- VTR STBY/SAVE switch : "SAVE"
- KNEE mode : "MANUAL"
- SKIN DTL : "ON"
- C.TEMP 5600K : "ON"
- A.IRIS CORR : except "OFF"

**[ Center Marker, Safety Markers and Frame Marker ]**

The Center Marker is used to ascertain the center of the screen or align the camera horizontally and vertically.

The Safety Markers are used to indicate the safety area zone on the screen. The safety area can be set to the Action Area or Title Area by means of the camera menu.

The Frame Marker is used to ascertain the frame of the image being shot.

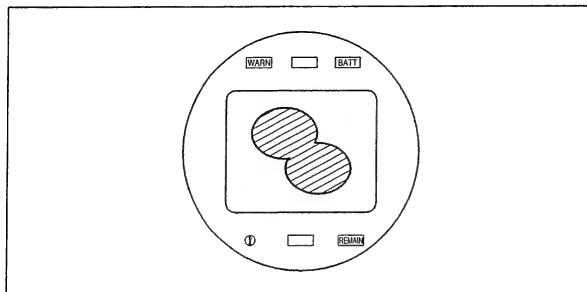
**Reference**

Refer to "4.14 Camera Menu" for how to make setting.



### [ Zebra Indicator ]

A zebra pattern appears superimposed over the image when the video level exceeds the setting (The zebra indicator is tuned on or off by the ZEBRA switch on the viewfinder).

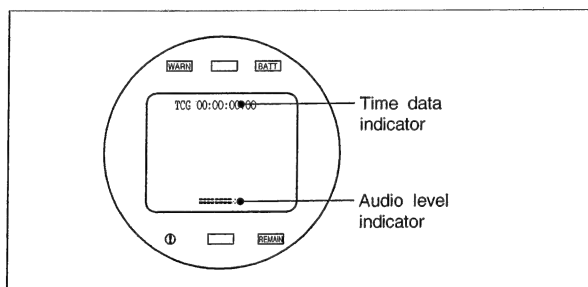


### [ Audio Level Indicator and Time Data Indicator ]

The audio recording level for CH-1 and CH-2 is indicated in the form of a bar by the Audio Level Indicator.

The time code, etc. is indicated in alphanumerics by the Time Data Indicator.

The setting for indicators is set by "DISPLAY SELECT" of the camera menu "VF DISPLAY".



### [ Switching Display ]

The character display settings can be set by "VF DISPLAY" of the camera menu.

Depending on the mode, the characters to be displayed on the viewfinder screen differ.

- OFF : No character is displayed. However, the battery and other warnings are displayed.
- 1 : The Area Markers, Center Marker, Frame Marker, and Audio Level are always displayed. The Time Data is displayed when the value changes. When the following switches and knobs are operated, the setting state is displayed for about 2 seconds.

- OPTICAL FILTER knob
- GAIN SELECT switch
- AWB SELECT switch
- SHUTTER/SUP-V switch
- Lens EXTENDER SELECT switch

- 2 : The Area Markers, Center Marker, Frame Marker, Time Data, Audio Level and Filter Position are always displayed.

When the following switches are operated, if the setting is the standard setting, the setting state is

displayed for about 2 seconds. If the setting is not the standard setting, the setting state is always displayed.

- GAIN SELECT switch : "0dB"
- SHUTTER/SUP-V switch : "OFF"
- AWB SELECT switch : "Ach"

### Reference

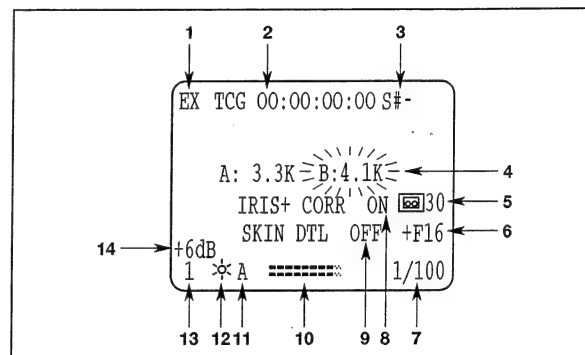
Refer to "4.14 Camera Menu" for how to make setting.

### Notice

- During VCR recording, the state where "VF DISPLAY" is set to "1" is set regardless of the mode set above.
- While the VF CHAR button is pressed, all the characters will be displayed.

### [ Character Display ]

#### • Status Display



- 1 : Lens extender operation indication
- 2 : Time data indication

The VCR time data indication differs according to the DISPLAY switch setting.

Switch setting	Displayed data
COUNTER	CNT : Tape transport hours
TC	TCG : Time code data from time code generator TCR : Time code data from time code reader
UB	UBG : User bit data from time code generator UBR : User bit data from time code reader

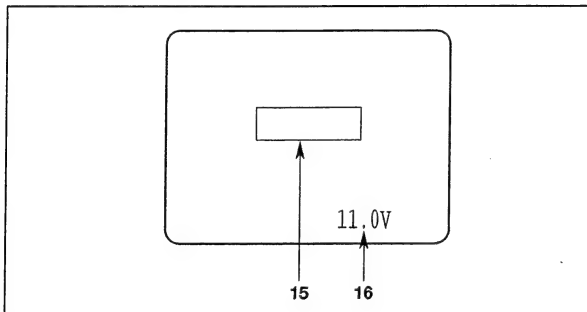
- 3 : Scene file number
- 4 : AWB color temperature (which are stored in the memories for the AWB memory channels. While the VF CHAR button is pressed, they are displayed. The blinking channel is selected by the AWB SELECT switch.)
- 5 : Tape remaining time (which is displayed at a start/stop of recording.)
- 6 : Lens F value
- 7 : Shutter speed or super-V mode

- 8 : P.FUNC (A function and state assigned to the P.FUNC button are displayed.)
- 9 : SKIN DTL ON/OFF indication
- 10 : Audio level

channel 1    ■■■■■■■■■■  
channel 2    ■■■■■■■■■■

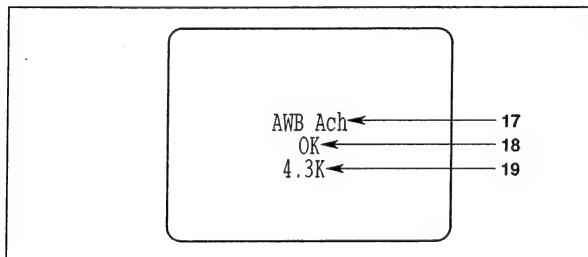
- 11 : AWB memory channel (A, B, O (OFF))
- 12 : Electrical color temperature filter operation indication
- 13 : Filter number
- 14 : Gain value

#### • Warning Display



- 15 : Warning indication
- 16 : Battery voltage/remainder (displayed when the battery voltage drops down below the voltage set by the camera menu. Or when the battery remainder drops down below the remainder set by the camera menu with an intelligent battery made by ANTON/BAUER used.)

#### • AWB/ABB Display



- 17 : Automatic function now being executed (AWB Ach/Bch, ABB)
- 18 : Execution result
  - OK : when the execution has been completed.
  - NG : when the execution was not completed.
  - STOP : when the execution has been stopped.
  - OVER : when the input signal level is too high.
  - UNDER : when the input signal level is too low.
- CHG FILTER
  - : when the color temperature filter is not proper.
- COLOR TEMP.HIGH
  - : when the color temperature of the filter is too high.

#### • COLOR TEMP.LOW

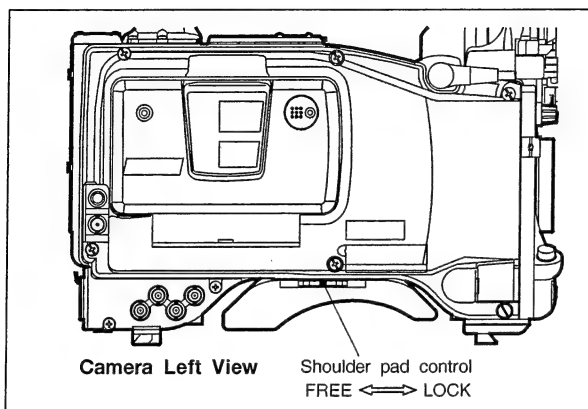
: when the color temperature of the filter is too low.

- 19 : AWB color temperature (displayed at AWB completion.)

### 4.12 Adjusting Shoulder Pad Position

The shoulder pad can be slid forwards and backwards. Adjust it to the optimum position.

1. Rotate the shoulder pad control on the camera left side to be loose.
2. Set the shoulder pad to the desired position.
3. Rotate the shoulder pad control to be tightened.



#### ⚠ CAUTION

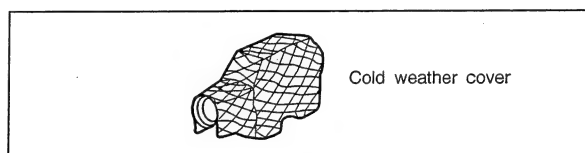
- Before adjusting the position of the shoulder pad and before attaching or detaching it, ensure that the camera is placed on a stand with a flat surface. Take care since the camera may fall on to the floor or ground if it is handled in an unstable position.
- If the shoulder pad has become loose or developed play, the camera may fall on to the floor or ground. Be sure to tighten up the shoulder pad control before using the camera.

### 4.13 Shooting in Particular Environment

When the camera is used in a particular environment such as places where the temperature is excessively low, where the camera is subject to the direct rays of the sun throughout the day or where an electric field strong enough to put electronic circuits out of order exists in the vicinity of the camera, it is necessary to take some protective measures so that the camera may be normally operated.

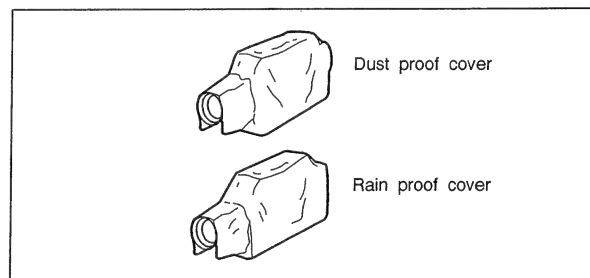
#### [ Shooting in Intense Cold District ]

Previously change the oil with that for cold districts. Otherwise the oil is frozen by the cold and the movement of the tripod, focus, zoom and iris will become heavy. Put a cold weather cover on the camera. Before starting shooting, fully warm up the camera.



#### [ Shooting in Dusty Place or in Rain ]

The camera is of dustproof and rainproof design. However, when shooting in a dusty place or in the rain, put a dustproof cover or a rainproof cover on the camera.



#### [ Shooting in Place Where Electric Field Strength Is High ]

The camera is precision device. Therefore, its electronic circuits are adversely affected in a place where the electric field strength is excessively high such as an airport, a base or a transmitting station. When shooting in such a place, completely shield the camera by thoroughly covering it with aluminium foil.

It is necessary to take the same measure for other devices.

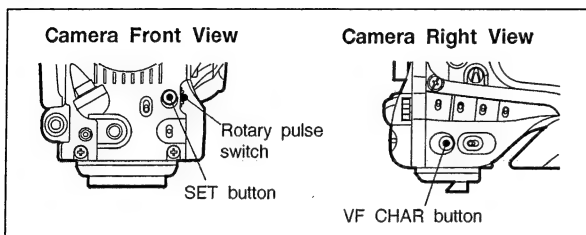
### 4.14 Camera Menu

This camera has 2 kinds of menu; "NORMAL MENU" and "MAINTENANCE MENU".

The items are selected or set on menu screens for operation which are displayed on the viewfinder or monitor.

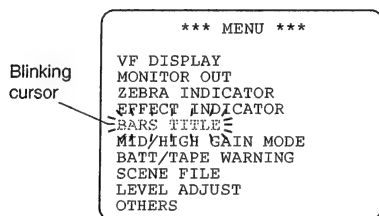
#### (1) NORMAL MENU

Operate the normal menu as follows.



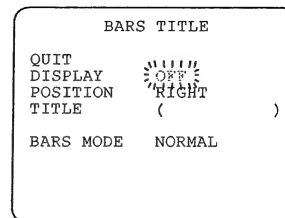
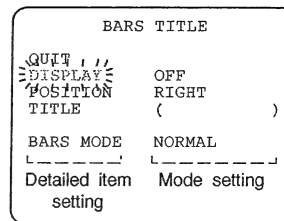
1. Press the SET button on the camera front side while pressing the VF CHAR button on the camera right side. The menu screen (main menu) shown in the figure below appears.

To close the menu, press the VF CHAR button again.



An item which is blinking on the menu is the selected item. This blinking state is hereafter referred to as the blinking cursor.

2. Turn the rotary pulse switch to align the blinking cursor with a menu item to be set.
3. Press the SET button to decide an item.  
When an item is decided, the screen automatically changes to the sub menu where the selected item can be set in further detail.
4. Select an item on the sub menu by turning the rotary pulse switch and decide it by pressing the SET button like the main menu.



When a detail item has been decided, the blinking cursor moves to the mode setting column (ON/OFF, etc.).

5. Select the mode using the rotary pulse switch and decide it by pressing the SET button.  
Each time the SET button is pressed, the blinking cursor moves from one item to the next and from the detailed item setting to mode setting for each item.
6. When "QUIT" is selected on the sub menu and decided, the display returns to the previous menu screen.

#### Notice

- If the MAINTENANCE MENU appears on the screen, press the VF CHAR button again to close the menu and retry operation on the NORMAL MENU. At that time, it is judged that VF CHAR button is pressed for more than 2 seconds. Therefore, it is not a fault or trouble.
- When the VF CHAR button is pressed, the menu is closed immediately no matter which menu screen (main menu or sub menu) is being displayed.
- Any mode settings which have been changed but not decided will be not effective.

Items which are displayed on the NORMAL MENU can be set by "MENU CUSTOMIZE" of the MAINTENANCE MENU (3/3). This section describes menus in the factory setting state.

Main Menu	Sub Menu	Selection	Initial Value	Explanation
VF DISPLAY	DISPLAY MODE	OFF, 1, 2	2	Selection of display modes with various characters
	SAFETY AREA	ACTION, TITLE	ACTION	Selection of safety markers (action area or title area)
	SAFETY MARKER	OFF, ON=16:9, ON=4:3 (*1)	OFF	ON/OFF for safety marker
	CENTER MARKER	OFF, ON	OFF	ON/OFF for center marker
	FRAME MARKER	OFF, ON=16:9, ON=4:3 (*1)	OFF	ON/OFF for frame marker
	MARKER/CHAR LVL	1 to 100	50	Level setting for makers and characters
	ZEBRA IND LVL	1 to 100	20	Level setting for zebra indicator
	OUTPUT SIGNAL	Y, R+G+B	Y	Selection of video signal to be displayed on the viewfinder
	DISPLAY SELECT	ON, OFF	ON	ON/OFF for character indication
MONITOR OUT	OUTPUT SIGNAL	ENC, Y, R+G+B, R, G, B, R-G, B-G	ENC	Selection of video signal to be output to the MON OUT connector
	SAFETY MARKER	OFF, ON	OFF	ON/OFF for safety marker
	CENTER MARKER	OFF, ON	OFF	ON/OFF for center marker
	FRAME MARKER	OFF, ON	OFF	ON/OFF for frame marker
	CHARACTER IND	OFF, ON	ON	ON/OFF for character indicator
	MARKER/CHAR LVL	1 to 100	65	Level setting of markers and characters
ZEBRA INDICATOR	ZEBRA IND	OFF, ON	ON	ON/OFF for first zebra indicator
	ZEBRA1 DETECT	1 to 137	100	Detection level setting of first zebra signal
	ZEBRA2 DETECT	OFF, ON	OFF	ON/OFF for second zebra indicator
EFFECT INDICATOR	ZEBRA2 DETECT	1 to 137	70	Detection level setting of second zebra signal
	GAIN UP	ON, OFF	ON	Setting of function linked to warning indication (! lamp) in the viewfinder.
	AWB OFF	ON, OFF	ON	
	VTR SAVE	ON, OFF	ON	
	LENS EXT	ON, OFF	ON	
	MANUAL KNEE	ON, OFF	ON	
	SKIN DTL	ON, OFF	ON	
	C.TEMP 5600K	ON, OFF	ON	
	SHUTT/SUP-V	ON, OFF	ON	
BARS TITLE	A.IRIS CORR	ON, OFF	ON	
	DISPLAY POSITION	OFF, ON	OFF	ON/OFF for color bar title display
	TITLE	NTSC : RIGHT, LEFT	RIGHT	Setting of color bar title display position
MID/HIGH GAIN MODE	BARS MODE	PAL : TOP, BOTTOM	TOP	Setting of color bar title character string
		up to 10 characters		Setting of color bar mode
		NORMAL, SPLIT	NORMAL	
MID/HIGH GAIN MODE	MID GAIN	-3, +3, +6, +9, +12, +18 dB (<HIGH)	+6dB	Setting of gain for the MID position of the GAIN SELECT switch
	HIGH GAIN	+6, +9, +12, +18, +30 dB (HYPER>) & (>MID)	+12dB	Setting of gain for the HIGH position of the GAIN SELECT switch
	HYPER GAIN	+30, +36, +42, +48 dB, SEL(30-36), SEL(30-42), SEL(30-48) (>HIGH)	SEL(30-42)	Setting of gain for HYPER GAIN
BATT/TAPE WARNING	BATT WARN SET	AUTO, MANUAL	AUTO	Setting of battery warning (voltage value) detection
	BATT WARN VOLT	11.0 to 14.0 V	11.3V	Setting of voltage value at which battery warning will appear
	BATT WARN REMAIN	10, 20, 30 %	10%	Setting of remaining level at which battery warning will appear(*2)
	WARN FRONT TALLY	ON, OFF	ON	ON/OFF for front tally warning display
SCENE FILE	WARN BACK TALLY	ON, OFF	ON	ON/OFF for back tally warning display
SCENE FILE	SCENE NUMBER	OFF, NO.1 to NO.8	OFF	Call for scene file
	STORE SCENE	NO.1 to NO.8, CANCEL	READY	Registration of scene file
LEVEL ADJUST	MASTER GAMMA	-100 to +100	0.0	Level adjustment of MASTER GAMMA
	MASTER PED	-100 to +100	0.0	Level adjustment of MASTER PED
	DTL GAIN	-100 to +100	0.0	Level adjustment of DTL GAIN
	SKIN DTL MODE	ON, OFF	OFF	ON/OFF for SKIN DTL mode
	SKIN DTL	-100 to +100	0.0	Level adjustment of SKIN DTL GAIN
	COLOR SAT MODE	ON, OFF	OFF	ON/OFF for COLOR SAT mode
	COLOR SAT	-100 to +100	0.0	Level adjustment of COLOR SAT GAIN
	ADJUST CLR	PUSH SET -> CLR, CANCEL	READY	Initializing of the above level adjustment data
OTHERS	GENLOCK	AUTO, OFF	AUTO	Setting of external synchronization function
	RET SOURCE	VTR VIDEO, G.L VIDEO, EXT VIDEO	VTR VIDEO	Selection of RET video signal source
	VF G TALLY	NO, YES	NO	Setting for a viewfinder with G tally lamp
	BARS WITH CAP	ON, OFF	ON	Setting for IRIS CAP linkage with BARS ON
	C.SAT INH IN BARS	ON, OFF	OFF	Inhibition against COLOR SAT level adjustment with BARS ON
	PWR ON AWB OFF CLR	YES, NO	YES	Cancellation of AWB OFF with power on with remote controller
	MENU CURSOR	NEXT, STAY	NEXT	Setting of menu cursor movement
	SUB MENU EXIT	QUIT MENU, VF CHR SW	QUIT MENU	Setting for operation to exit sub menus

\*1 "ON" or "OFF" can be selected at the aspect ratio of 4:3.

\*2 This item is available only when an intelligent battery made by ANTON/BAUER is used.

### a) VF DISPLAY

The ON/OFF setting of markers which are displayed on the viewfinder screen, and other items are set on this menu.

VF DISPLAY	
QUIT	
DISPLAY MODE	2
SAFETY AREA	ACTION
SAFETY MARKER	OFF
CENTER MARKER	OFF
FRAME MARKER	OFF
MARKER/CHAR LVL	50
ZEBRA IND LVL	20
OUTPUT SIGNAL	Y
DISPLAY SELECT	ON

#### [ DISPLAY MODE ]

This item sets the mode in which the characters are to be displayed on the viewfinder screen. Depending on the set mode, the displayed characters differ as shown below.

- **OFF** : No character is displayed except for the warning messages.
- **1** : The area, center and frame markers, and audio level are displayed all the time. The time data is displayed when the value changes. When any of the switches listed below is operated, the corresponding setting status is displayed for approx. 2 seconds.
  - OPTICAL FILTER knob
  - GAIN SELECT switch
  - AWB SELECT switch
  - SHUTTER/SUP-V switch
  - EXTENDER SELECT lever of lens
- **2** : The area, center and frame markers, and the time data and audio level and the filter position are displayed all the time. When any of the switches listed below is operated, the corresponding setting status is displayed for approx. 2 seconds. It is displayed all the time if it is not the normal setting.
  - GAIN SELECT switch : 0dB (normal)
  - AWB SELECT switch : Ach (normal)
  - SHUTTER/SUP-V switch : OFF (normal)

#### 1. Select and decide "VF DISPLAY".

The sub menu appears.

#### 2. Select and decide "DISPLAY MODE".

The blinking cursor moves to the mode setting column.

#### 3. Select and decide "OFF", "1" or "2".

#### **Notice**

During VCR recording, no marker, time data, audio level or character display except for the remaining tape and warning displays appears on the screen regardless of the mode set as described above. However, when any of the switches listed below is operated, the corresponding setting status is displayed for approx. 2 seconds.

- OPTICAL FILTER knob
- GAIN SELECT switch
- AWB SELECT switch
- SHUTTER/SUP-V switch
- EXTENDER SELECT lever of lens

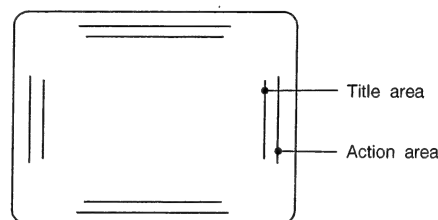
While the VF CHAR button is being pressed, all the characters are displayed.

#### [ SAFETY AREA, SAFETY MARKER ]

The safety markers are used to check the safety area zone on the screen.

They can be set to "ACTION" (action area) or "TITLE" (title area) on the sub menu "SAFETY AREA".

It is also possible to display the safety marker zone by selecting "ON=16:9" or "ON=4:3" on the sub menu "SAFETY MARKER".



- **Action area** : This means action safety area which is equivalent to approx. 90% of height and width of the screen's height and width.
- **Title area** : This means title safety area which is equivalent to approx. 80% of height and width of the screen's height and width.

#### [ CENTER MARKER ]

Select and decide "ON" or "OFF" on the sub menu "CENTER MARKER".

#### [ FRAME MARKER ]

Select and decide "ON=16:9", "ON=4:3" or "OFF" on the sub menu "FRAME MARKER".

#### **Notice**

Each area marker displayed on the viewfinder screen (area marker, center marker and frame marker) can be displayed simultaneously if set to "ON".

When you turn the rotary pulse switch with the VF CHAR button being pressed, lump ON/OFF setting mode is set. At this time, setting state is displayed on the viewfinder screen (after the setting mode is set, you may release the VF CHAR button).

This setting mode is finished in about 3 seconds when you let it alone after setting to ON/OFF with the rotary pulse switch. There are 3 methods about finishing the setting mode; "pressing the SET button", "pressing the VF CHAR button" and "leave it alone for 3 seconds after setting".

**[ MARKER/CHAR LVL ]**

Set the brightness of markers and characters.

1. Select and decide "MARKER/CHAR LVL".
2. Select and decide the desired value.

**[ ZEBRA IND LVL ]**

Set the brightness of the zebra indicator.

1. Select and decide "ZEBRA IND LVL".
2. Select and decide the desired value.

**Notice**

The markers will not be displayed even if you set to "2" or "1" on the sub menu "DISPLAY MODE" unless the marker displays are set to "ON".

**[ OUTPUT SIGNAL ]**

Select the video signal (Y, R+G+B) to be displayed on the viewfinder screen.

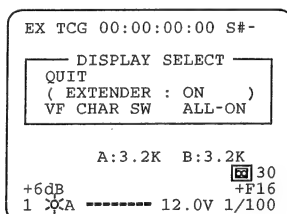
1. Select and decide "OUTPUT SIGNAL".
2. Select and decide "Y" or "R+G+B".

**[ DISPLAY SELECT ]**

Turn the character displays ON/OFF.

1. Select and decide "DISPLAY SELECT".

The following sub menu appears.



2. The parentheses show items which can be set. Select and decide the desired item.
3. Select and decide "ON" or "OFF"
4. Set whether to display characters when the VF CHAR button is pressed.
  - **SEL-ON** : Displays only the item that is set to "ON".
  - **ALL-ON** : Displays all character displays regardless of ON/OFF setting.

**b) MONITOR OUT**

Set items such as marker displays to be displayed on the monitor screen.

MONITOR OUT		
QUIT		
OUTPUT SIGNAL	ENC	
SAFETY MARKER	OFF	
CENTER MARKER	OFF	
FRAME MARKER	OFF	
CHARACTER IND	ON	
MARKER/CHAR LVL	65	
ZEBRA IND	OFF	
ZEBRA IND LVL	20	

**[ OUTPUT SIGNAL ]**

Select the video signal (ENC, Y, R+G+B, R-G, B-G, R, G, B) to be output to the MON OUT connector.

1. Select and decide "OUTPUT SIGNAL".
2. Select and decide the desired signal.

**Notice**

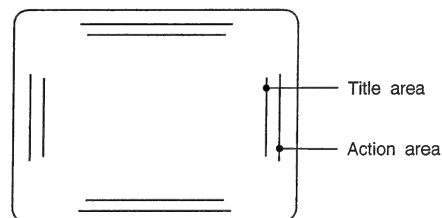
This setting is valid only while the camera power is supplied. When the camera power is turned OFF, the setting is reset to "ENC".

**[ SAFETY MARKER ]**

The safety markers are used to check the safety area zone on the screen.

This area is the title or action area which was set on the sub menu "VF DISPLAY".

1. Select and decide "SAFETY MARKER".
2. Select and decide "ON" or "OFF".

**[ CENTER MARKER, CHARACTER IND ]**

Select and decide ON/OFF about the center marker and character indicator on the sub menu.

**[ FRAME MARKER ]**

Select and decide ON/OFF.

**[ MARKER/CHAR LVL ]**

Set the brightness of markers and characters.

1. Select and decide "MARKER/CHAR LVL".
2. Select and decide the desired value.

**[ ZEBRA IND, ZEBRA IND LVL ]**

Set the brightness of zebra indicator.

1. Select and decide "ZEBRA IND".
2. Select and decide "ON".
3. Select and decide "ZEBRA IND LVL".
4. Select and decide the desired value.

**c) ZEBRA INDICATOR**

There are two kinds of zebra signals which display a striped pattern superimposed over the image; the first zebra signal which appears when the video level has exceeded the ZEBRA1 DETECT setting and the second zebra signal which appears when the video level matches the ZEBRA2 DETECT setting.

The zebra signals differ in terms of their generated striped pattern. The striped pattern of the first zebra signal consists of narrow diagonal lines running toward the top right of the screen. The striped pattern of the second zebra signal consists of wider diagonal lines running rather slowly toward the bottom right of the screen.

The first zebra signal is used to control the tones of the entire screen while the second zebra signal is used to control the tones of parts of the subject, such as face tones.

The setting method is described next.

ZEBRA INDICATOR		
QUIT		
ZEBRA1 IND	ON	
ZEBRA1 DETECT	100%	
ZEBRA2 IND	OFF	
ZEBRA2 DETECT	70%	

**[ Setting of ZEBRA 1 Signal ]**

1. Select and decide "ZEBRA 1 IND".
2. Select and decide "ON".
3. Select and decide "ZEBRA 1 DETECT".
4. Select and decide the desired value.

**[ Setting of ZEBRA 2 Signal ]**

1. Select and decide "ZEBRA 2 IND".
2. Select and decide "ON".
3. Select and decide "ZEBRA 2 DETECT".
4. Select and decide the desired value.

**Notice**

The first and second zebra signals are not displayed unless the ZEBRA switch on the viewfinder is set to "ON". However, while the VF CHAR button is pressed, the zebra signals are forcibly displayed no matter how the ZEBRA switch is set, so the video level can be

confirmed temporarily.

**d) EFFECT INDICATOR**

Set the functions linked to the warning display (! lamp) on the viewfinder screen.

1. Select and decide "EFFECT INDICATOR".

The following sub menu appears.

EFFECT INDICATOR		
QUIT		CUR-RENT
GAIN UP	ON	
AWB OFF	ON	*
VTR SAVE	ON	
LENS EXT	ON	
MANUAL KNEE	ON	*
SKIN DTL	ON	
C.TEMP 5600K	ON	*
SHUTT/SUP-V	ON	
A.IRIS CORR	ON	

2. Select and decide a item to be set.

3. Select and decide "ON" or "OFF".

When the selected item is set to "ON", the warning display (! lamp) lights up when the selected function is turned ON.

**Notice**

The function which is currently lighting up the warning display (! lamp) is indicated by an asterisk in the CURRENT column.

**e) BARS TITLE**

Set a title (consisting of 10 or fewer characters) to be displayed on the color bar and its display position.

**[ TITLE ]**

BARS TITLE		
QUIT		
DISPLAY	OFF	
POSITION	RIGHT	
TITLE	(	)
BARS MODE	NORMAL	

1. Select and decide "BARS TITLE".

The screen display changes to the sub menu screen.

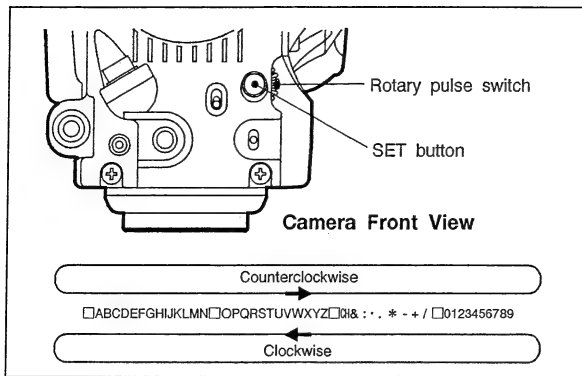
2. Select and decide "TITLE".

The blinking cursor moves to the mode setting column and the title input mode is set.

3. Select the desired characters using the rotary pulse switch and press the SET button to decide them.

4. After all the characters are entered inside the parentheses, the title input mode is completed and the title is updated. When the title consists of 9 or fewer characters, be sure to input blanks to bring the total up to 10 characters. The title input mode will not be completed unless 10 characters are input. Characters changes as shown in the figure below while the rotary pulse switch is rotated.





### [ DISPLAY ]

1. Select and decide "DISPLAY".  
The blinking cursor moves to the mode setting column.
2. Select and decide "ON" or "OFF".

### [ POSITION ]

1. Select and decide "POSITION".  
The blinking cursor moves to the mode setting column.
2. Select and decide "RIGHT" or "LEFT".

### [ BARS MODE ]

Set kinds of color bar signals, one of which is displayed with the OUTPUT SELECT switch set to "BARS".

- **NORMAL** : SMPTE color bar
- **SPLIT** : SPLIT color bar for SNG

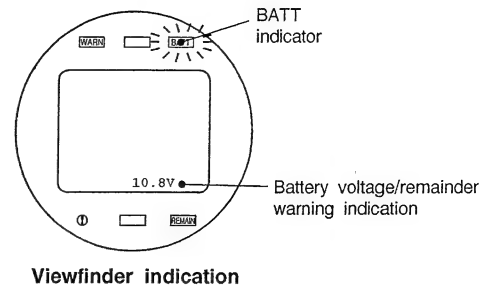
### f) MID/HIGH GAIN MODE

You can set gain to be assigned to "MID" and "HIGH" of the GAIN SELECT switch and to the HYPER GAIN button. Set them on the sub menus "MID GAIN", "HIGH GAIN" and "HYPER GAIN".

MID/HIGH GAIN MODE		
QUIT		
MID GAIN		+ 6dB
HIGH GAIN		+12dB
HYPER GAIN		+30dB

A value from -3 to +18dB can be selected for MID GAIN, a value from +6 to +30dB can be selected for HIGH GAIN and a value from +30dB to SEL(30-48)dB can be selected for HYPER GAIN. The MID GAIN value cannot be set higher than the HIGH GAIN value. The HIGH GAIN value cannot be set higher than the HYPER GAIN value.

### g) BATT/TAPE WARNING



Viewfinder indication

BATT/TAPE WARNING			
QUIT			
BATT WARN SET			AUTO
BATT WARN VOLT			11.3V
BATT WARN REMAIN			10%
WARN FRONT TALLY			ON
WARN BACK TALLY			ON

### [ BATT WARN SET ]

Set the voltage detecting method for the battery warning.

- **AUTO** : This setting is automatically made by the setting of battery remainder indication on the VTR menu.
- **MANUAL** : This detects the voltage set at "BATT WARN VOLT" and "BATT WARN REMAIN".

### [ BATT WARN VOLT ]

You can set battery voltage between 11.0V and 14.0V (0.1V step) at which warning is issued.

When the voltage falls below the setting, the BATT indicator inside the viewfinder lights and the voltage is displayed for about 2 seconds. Thereafter it will be shown for about 2 seconds each time the voltage changes.

### [ BATT WARN REMAIN ]

A warning based on the remaining battery charge can be displayed when an intelligent battery made by ANTON BAUER or IDX is used. The remaining charge level at which the warning is to be issued can be set here. 3 settings are selectable; "10%", "20%" and "30%".

When the remaining charge falls below the setting, the BATT indicator inside the viewfinder lights and the remaining charge is displayed for about 2 seconds.

### Notice

The optional adaptor supporting intelligent batteries is required for this.

### [ WARN FRONT TALLY ]

Set whether to use the front tally to display warning state.

**[ WARN BACK TALLY ]**

Set whether to use the back tally to display warning state.

**h) SCENE FILE**

Use the SCENE FILE mode in order to shoot under special circumstances, etc.

You can set 8 SCENE FILES (No.1 to No.8).

SCENE FILE		
QUIT		
SCENE NUMBER		OFF
STORE SCENE		READY

**[ SCENE NUMBER ]**

A scene file made beforehand can be called out.

1. Select and decide "SCENE NUMBER".
2. Select and decide the desired file number.  
Normally, "SCENE NUMBER" should be set to "OFF".

**[ STORE SCENE ]**

Scene files can be created.

1. Select and decide "STORE SCENE".
2. Select and decide the desired file number.  
When "CANCEL" is selected and decided, a scene file will be not created.

**i) LEVEL ADJUST**

LEVEL ADJUST	
QUIT	
MASTER GAMMA	0.0
MASTER PED	0.0
DTL GAIN	0.0
SKIN DTL MODE	OFF
SKIN DTL	0.0
COLOR SAT MODE	OFF
COLOR SAT	0.0
ADJUST CLR	READY

**[ MASTER GAMMA ]**

The setting of the master gamma can be changed according to shooting conditions.

While observing the waveform monitor, color monitor or viewfinder, rotate the rotary pulse switch and set the MASTER GAMMA to any value.

**[ MASTER PED ]**

The master pedestal level can be changed according to the shooting conditions.

For example, when shooting in a fog, lowering the pedestal level prevents the black level from raising over the entire image, thus enabling the picture quality to be improved.

While observing the waveform monitor, color monitor or viewfinder, rotate the rotary pulse switch and set the

MASTER PED to any value.

**Notice**

The displayed value means the ratio of correction amount and therefore, it is not an actual video signal level (IRE value).

When returning it to the default (factory) setting, execute the auto black balance. Refer to "4.1 Auto White Balance and Auto Black Balance" for how to execute the auto black balance.

**[ DTL GAIN ]**

The setting of the DTL gain can be changed according to the shooting conditions.

While observing the waveform monitor, color monitor or viewfinder, rotate the rotary pulse switch and set the DTL GAIN to any value.

**[ SKIN DTL MODE ]**

Set the skin DTL to ON/OFF.

**Reference**

Refer to "4.5 Enhancing Screen Detail (DTL)" for details on the skin DTL.

**[ SKIN DTL ]**

The setting of the skin DTL gain can be changed according to the shooting conditions.

After setting "SKIN DTL MODE" to "ON", while observing the waveform monitor, color monitor or viewfinder, rotate the rotary pulse switch and set the SKIN DTL to any value.

**Notice**

If "SKIN DTL MODE" is not set to "ON", the SKIN DTL value cannot be changed.

**[ COLOR SAT MODE ]**

Set color saturation to ON/OFF.

**[ COLOR SAT ]**

The setting of the color saturation can be changed according to the shooting conditions.

After setting "COLOR SAT MODE" to "ON", while observing the waveform monitor, color monitor or viewfinder, rotate the rotary pulse switch and set the COLOR SAT to any value.

**Notice**

If "COLOR SAT MODE" is not set to "ON", the COLOR SAT value cannot be changed.

**[ ADJUST CLR ]**

Settings changed by LEVEL ADJUST can be returned to the state before the changes were made.

Rotate the rotary pulse switch and execute "PUSH SET -> CLR" to clear the current settings.

Executing "CANCEL" does not clear the current settings and ends ADJUST CLR.

**j) OTHERS**

OTHERS	
QUIT	
GENLOCK	AUTO
RET SOURCE	VTR VIDEO
VF G TALLY	NO
BARS WITH CAP	ON
C.SAT INH IN BARS	OFF
PWR ON AWB OFF CLR	YES
MENU CURSOR	NEXT
SUB MENU EXIT	QUIT MENU

**[ GENLOCK ]**

Set operations of external sync function.

- **AUTO** : Genlock is applied when an external signal is input to the GENLOCK IN connector.
- **OFF** : Genlock is not applied even when an external signal is input to the GENLOCK IN connector.

Set to "OFF" if you do not want the camera to work with external sync operations when inputting video signal of another camera to the GENLOCK IN connector and monitoring as returned images. Normally, set to "AUTO".

**Notice**

When you set to "OFF", genlock will not be applied even when an external sync signal is input to the GENLOCK IN connector. Normally, be sure to set to "AUTO".

**[ RET SOURCE ]**

When monitoring a picture (playback or recording review) from the internal VCR, select "VTR VIDEO" at "RET SOURCE". And when the VTR adaptor is installed, selecting "EXT VIDEO" allows returned images from an external VCR to be monitored. In addition, when monitoring images input to the GENLOCK IN connector, select "G.L. VIDEO".

While "RET SOURCE" is set to "G.L. VIDEO", even if "GENLOCK" is set to "AUTO", when genlock signal is not input, images from the internal VCR is selected automatically.

**Notice**

Pressing the RET button on the lens outputs returned images to the viewfinder screen.

**[ VF G TALLY ]**

When mounting any viewfinder other than the supplied one, set to "YES" for a viewfinder with G tally lamp function and set to "NO" for a viewfinder without G tally lamp function (when mounting the supplied viewfinder, set to "NO").

**[ BARS WITH CAP ]**

Set whether to close iris when color bar is displayed.

If you set to "ON", iris will be closed when color bar is displayed.

**[ C.SAT INH IN BARS ]**

Set whether to inhibit adjustment of color saturation when color bar is displayed.

If you set to "ON", the level of color saturation cannot be adjusted when color bar is displayed.

**[ PWR ON AWB OFF CLR ]**

Set whether to release the OFF setting of the AWB memory when power is turned on with the AWB memory set to "OFF", while a remote controller is connected and used.

- **YES** : This releases the OFF setting of the AWB memory and sets to the memory (Ach or Bch) before you set to "OFF".
- **NO** : This sets to "AWB OFF" while not releasing the OFF setting.

When a remote controller without the AWB memory switching function is used, if the previous setting is set to AWB OFF, the AWB cannot be executed. In this case, setting to "YES" releases the AWB OFF setting and sets the AWB memory to Ach or Bch so that AWB can be executed. Normally, set to "YES". While using a remote controller with the AWB memory switching function, if leaving the AWB OFF setting when turning on power, set to "NO".

**[ MENU CURSOR ]**

When "NEXT" (factory setting) is selected, the blinking cursor automatically moves to the next item after you decide the menu setting with the SET button.

When "STAY" is selected, the blinking cursor stays at the item after you decide the menu setting.

**[ SUB MENU EXIT ]**

Set the method of exiting from sub menus.

**• QUIT MENU**

: To exit from a sub menu, select and decide "QUIT" on the menu.

To end menu operations, press the VF CHAR button.

**• VF CHAR SW**

: To exit a sub menu, press the VF CHAR button.

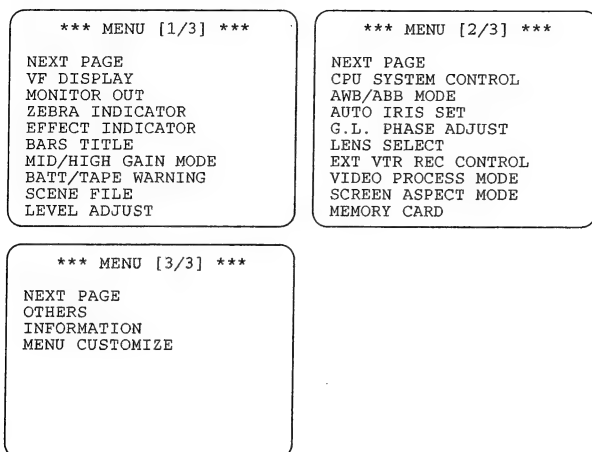
If the VF CHAR button is pressed with the main menu displayed, the menu will be closed.

To end menu operations directly, press the SET button while pressing the VF CHAR button.

**(2) MAINTENANCE MENU**

The MAINTENANCE MENU consists of “\*\*\* MENU [1/3] \*\*\*”, “\*\*\* MENU [2/3] \*\*\*” and “\*\*\* MENU [3/3] \*\*\*”.

Operation method about each menu is almost the same as that about the NORMAL MENU.



1. Press the SET button on the camera front side while pressing the VF CHAR button on the camera right side. At this time, continue to press the VF CHAR button for more than 2 seconds before pressing the SET button. To close the MAINTENANCE MENU, press the VF CHAR button again.
2. Adjust the blinking cursor to a menu item to be set by turning the rotary pulse switch.
3. Press the SET button to decide the item.  
When it is decided, the menu automatically changes to the sub menu on which you can set the detail of the selected item.
4. For the sub menu, select an item by turning the rotary pulse switch and press the SET button to decide it like the main menu.
5. Select the mode using the rotary pulse switch and decide it by pressing the SET button.  
Each time the SET button is pressed, the blinking cursor moves from one item to the next and from the detailed item setting to mode setting for each item.
6. When “QUIT” is selected on the sub menu and decided, the display returns to the previous menu screen.
7. To close the menu, press the VF CHAR button.

**Reference**

Operation procedure about the MAINTENANCE MENU is almost the same as that about the NORMAL MENU. For details, refer to “(1) NORMAL MENU”.

## • MENU (1/3)

Main Menu	Sub Menu	Selection	Initial Value	Explanation
NEXT PAGE				Movement to menu (2/3)
VF DISPLAY	DISPLAY MODE	OFF, 1, 2	2	Selection of display modes with various characters
	SAFETY AREA	ACTION, TITLE	ACTION	Selection of safety markers (action area or title area)
	SAFETY MARKER	OFF, ON=16:9, ON=4:3 (*1)	OFF	ON/OFF for safety marker
	CENTER MARKER	OFF, ON	OFF	ON/OFF for center marker
	FRAME MARKER	OFF, ON=16:9, ON=4:3 (*1)	OFF	ON/OFF for frame marker
	MARKER/CHAR LVL	1 to 100	50	Level setting for makers and characters
	ZEBRA IND LVL	1 to 100	20	Level setting for zebra indicator
	OUTPUT SIGNAL	Y, R+G+B	Y	Selection of video signal to be displayed on the viewfinder
	DISPLAY SELECT	ON, OFF	ON	ON/OFF for character indication
MONITOR OUT	OUTPUT SIGNAL	ENC, Y, R+G+B, R, G, B, R-G, B-G	ENC	Selection of video signal to be output to the MON OUT connector
	SAFETY MARKER	OFF, ON	OFF	ON/OFF for safety marker
	CENTER MARKER	OFF, ON	OFF	ON/OFF for center marker
	FRAME MARKER	OFF, ON	OFF	ON/OFF for frame marker
	CHARACTER IND	OFF, ON	ON	ON/OFF for character indicator
	MARKER/CHAR LVL	1 to 100	65	Level setting of markers and characters
	ZEBRA IND	OFF, ON	OFF	ON/OFF for zebra indicator
ZEBRA INDICATOR	ZEBRA IND LVL	1 to 100	20	Level setting of zebra indicator
	ZEBRA1 IND	OFF, ON	ON	ON/OFF for first zebra indicator
	ZEBRA1 DETECT	1 to 137	100	Detection level setting of first zebra signal
	ZEBRA2 IND	OFF, ON	OFF	ON/OFF for second zebra indicator
EFFECT INDICATOR	ZEBRA2 DETECT	1 to 137	70	Detection level setting of second zebra signal
	GAIN UP	ON, OFF	ON	Setting of function linked to warning indication (l lamp) in the viewfinder.
	AWB OFF	ON, OFF	ON	
	VTR SAVE	ON, OFF	ON	
	LENS EXT	ON, OFF	ON	
	MANUAL KNEE	ON, OFF	ON	
	SKIN DTL	ON, OFF	ON	
	C.TEMP 5600K	ON, OFF	ON	
	SHUTT/SUP-V	ON, OFF	ON	
BARS TITLE	A.IRIS CORR	ON, OFF	ON	
	DISPLAY POSITION	OFF, ON	OFF	ON/OFF for color bar title display
	NTSC : RIGHT, LEFT	RIGHT, LEFT	RIGHT	Setting of color bar title display position
	PAL : TOP, BOTTOM	TOP, BOTTOM	TOP	Setting of color bar title display position
	TITLE	up to 10 characters		Setting of color bar title character string
	BARS MODE	NORMAL, SPLIT	NORMAL	Setting of color bar mode
MID/HIGH GAIN MODE	MID GAIN	-3, +3, +6, +9, +12, +18 dB (<HIGH)	+6dB	Setting of gain for the MID position of the GAIN SELECT switch
	HIGH GAIN	+6, +9, +12, +18, +30 dB (HYPER>) & (>MID)	+12dB	Setting of gain for the HIGH position of the GAIN SELECT switch
	HYPER GAIN	+30, +36, +42, +48 dB, SEL(30-36), SEL(30-42), SEL(30-48) (>HIGH)	SEL(30-42)	Setting of gain for HYPER GAIN
BATT/TAPE WARNING	BATT WARN SET	AUTO, MANUAL	AUTO	Setting of battery warning (voltage value) detection
	BATT WARN VOLT	11.0 to 14.0 V	11.3V	Setting of voltage value at which battery warning will appear
	BATT WARN REMAIN	10, 20, 30 %	10%	Setting of remaining level at which battery warning will appear(*2)
	WARN FRONT TALLY	ON, OFF	ON	ON/OFF for front tally warning display
	WARN BACK TALLY	ON, OFF	ON	ON/OFF for back tally warning display
	SCENE NUMBER	OFF, NO.1 to NO.8	OFF	Call for scene file
	STORE SCENE	NO.1 to NO.8, CANCEL	READY	Registration of scene file
SCENE FILE	MASTER GAMMA	-100 to +100	0.0	Level adjustment of MASTER GAMMA
	MASTER PED	-100 to +100	0.0	Level adjustment of MASTER PED
	DTL GAIN	-100 to +100	0.0	Level adjustment of DTL GAIN
	SKIN DTL MODE	ON, OFF	OFF	ON/OFF for SKIN DTL mode
	SKIN DTL	-100 to +100	0.0	Level adjustment of SKIN DTL GAIN
	COLOR SAT MODE	ON, OFF	OFF	ON/OFF for COLOR SAT mode
	COLOR SAT	-100 to +100	0.0	Level adjustment of COLOR SAT GAIN
	ADJUST CLR	PUSH SET -> CLR, CANCEL	READY	Initializing of the above level adjustment data

\*1 "ON" or "OFF" can be selected at the aspect ratio of 4:3.

\*2 This item is available only when an intelligent battery made by ANTON/BAUER is used.

**Reference**

Refer to "(1) NORMAL MENU" for the explanation of MENU(1/3).

## • MENU (2/3) -1

Main Menu	Sub Menu	Selection	Initial Value	Explanation
NEXT PAGE				Movement to menu (3/3)
CPU SYSTEM CONTROL	LEVEL CONTROL	OPE, OFF	OPE	"OFF" temporarily sets level data controlled from CPU to 0 (center value).
	SEMI SELF MODE	OFF, ON	OFF	ON/OFF of semi self mode
	SEMI REMOTE MODE	OFF, ON	OFF	ON/OFF of semi remote mode
AWB/ABB MODE	AWB WITH A.IRIS	OFF, ON	ON	ON/OFF of the mode in which auto iris is forcibly set during AWB execution
	AWB WITH C.TEMP	OFF, ON	OFF	ON/OFF of the mode in which the electrical color temperature filter is linked with AWB
	SHOCKLESS AWB	OFF, ON-0.3s, ON-0.5s, ON-1.0s, ON-1.5s, ON-2.0s	ON-1.0s	Setting of SHOCKLESS AWB mode
	FILTER AWB MEM	OFF, ON-POS, ON-TEMP	OFF	Setting of the AWB memory for each filter position
	AWB REFERENCE	OFF, ON	OFF	Setting of whether the AWB convergence value is to be set to a desired setting
AUTO IRIS SET	REFERENCE SET	AWB, ABB	ABB	Creation of reference data serving as the convergence value when AWB or ABB is executed
	IRIS SET MODE	OFF, ON	OFF	ON/OFF for automatic iris movement setting
	IRIS LEVEL SET	-100 to +100	0	Setting of iris lever during automatic iris operation
	PEAK RATIO SET	-100 to +100	0	Setting of iris response for automatic iris
G.L. PHASE ADJUST	IRIS LIMIT	F22, F20, F18, F16	F22	Setting of the iris limit value in the close direction during automatic iris operation
	LENS ADJUST	OFF, F2.8, F16	OFF	Setting of the fixed iris value control output during lens adjustment
	SC COARSE (*1)	0, +100	0	Coarse setting of phase between internal SC and external reference signals
G.L. PHASE ADJUST	FINE (*1)	-100 to +100	0	Fine setting of phase between internal SC and external reference signals
	H PHASE (*1)	-100 to +100	0	Set phase between internal horizontal and external reference signals
LENS SELECT	FILE	OFF, ON	ON	ON/OFF of lens files
	NUMBER	NO.1 to 8	NO.1	Selection of the number of lens files (NO.1 to NO.8)
	NAME	up to 12 characters		Setting of character strings of lens file name
EXT VTR REC CONTROL	SET MODE	OFF, ON	OFF	ON/OFF for file set mode
	CONTROL MODE	EDGE TRIG, HI LVL REC, LO LVL REC, POSI PULSE, NEGA PULSE	EDGE TRIG	Selection of start/stop control mode for external VCR
	REC PRIORITY	PARALLEL, EXT VTR, INT VTR	PARALLEL	Setting of start/stop control signal output to VCR
	COMP LEVEL	MODE1, MODE2 (*2)	MODE1 (*2)	Setting of component output level for external VCR
EXT VTR REC CONTROL	26P VIDEO OUT	AUTO, ON	AUTO	Setting of video signal output mode for external VCR

\*1 These setting can be made only when the camera is in genlock state with a genlock signal input from the GENLOCK IN connector.

\*2 For the PAL specification, " - - - - " is displayed and setting cannot be made.

## • MENU (2/3) -2

Main Menu	Sub Menu	Selection	Initial Value	Explanation
VIDEO PROCESS MODE	CAL PULSE	OFF, ON	OFF	ON/OFF of SAWTOOTH calibration pulse
	GRP1- • GAMMA • GAMMA CURVE • FLARE • MATRIX • CHROMA • COLOR SAT • C.TEMP 5600K • BLK PRS/STR	OFF, 0.35, 0.4, 0.45 NORMAL, SPECIAL OFF, ON OFF, ON OFF, ON OFF, ON OFF, ON -7%, -5%, -3%, OFF, 3%, 5%, 7%	0.45 NORMAL ON ON ON OFF OFF OFF	ON/OFF of GAMMA and other video process circuits
	GRP2- • KNEE • KNEE MODE • WHITE CLIP • WHITE SHADE • BLACK SHADE	OFF, ON MANUAL, AUTO OFF, ON OFF, ON OFF, ON	ON AUTO ON ON ON	ON/OFF of KNEE and other video process circuits
	GRP3- • DTL • SOFT DTL • SKIN DTL • SLIM DTL • DIAGONAL DTL • DTL B/W BAL • KNEE APERTURE	OFF, ON OFF, ON OFF, ON OFF, ON OFF, ON 1 to 16 OFF, ON	ON OFF OFF OFF ON (*1) ON	ON/OFF of DTL and other video process circuits
	LEVEL SET • CONTROL FUNCTION          • MON OUT  • DISP VALUE • MANUAL CLR	GAIN, GAMMA, FLARE, MANUAL KNEE, AUTO KNEE, DTL (1/2), DTL (2/2), SOFT DTL, SKIN DTL, WHT CLIP, MATRIX, ENCODER, G.I PHASE, R WHT SHADING, G WHT SHADING, B WHT SHADING, R BLK SHADING, G BLK SHADING, B BLK SHADING, BLK SET, PED 1 : (Display level value) 2 : (Display level value) 3 : (Display level value) ENC, Y, R+G+B, R, G, B, R-G, B-G OFFSET, ABSOLUTE READY, PUSH SET, CANCEL	(*2)          ENC  OFFSET READY	Setting of level adjusting item for each video process circuits          Selection of MONITOR output signal  Selection of setting value indication Clearance of adjustment data
SCREEN ASPECT MODE (*3)	ASPECT RATIO	16 : 9, 4 : 3	4 : 3	Selection of aspect ratio
MEMORY CARD	LOAD FILE	up to 8 characters	-	Selection of the file which is to be read out from memory card
	LOAD DATA	ALL DATA, MENU DATA, VF DATA, SNAP SHOT, SCENE1-8, SCENE1, SCENE2, SCENE3, SCENE4, SCENE5, SCENE6, SCENE7, SCENE8, REFERENCE, LENS1-8, LENS1, LENS2, LENS3, LENS4, LENS5, LENS6, LENS7, LENS8	-	Selection of the data which is to be read out from memory card
	LOAD (->CAMERA) SAVE FILE SAVE DATA	EXECUTE, CANCEL up to 8 characters ALL DATA, SNAP SHOT, SCENE, REFERENCE, LENS	-  ALL DATA	Data of a memory card are read out to a camera. Name setting of file to be stored in a memory card Setting of data to be stored in a memory card
	SAVE (->M.CARD) M.CARD NAME	EXECUTE, CANCEL up to 11 characters	-	Data of a camera are stored in a memory card. Name setting of memory card

\*1 DTL B/W setting is different by camera model.

\*2 LEVEL SET CONTROL FUNCTION setting is different in setting value by camera model.

\*3 Only for HL-DV7W.





### a) CPU SYSTEM CONTROL

Set various operation modes.

Set them according to the desired operating conditions.

CPU SYSTEM CONTROL	
QUIT	
LEVEL CONTROL	OPE
SEMI SELF MODE	OFF
SEMI REMOTE MODE	OFF

#### [ LEVEL CONTROL ]

When this is set to "OFF", all the level data controlled from the CPU is temporarily set to "0" (center value : memory OFF function).

This is used to check the adjustment statuses of modules or pinpoint causes of trouble resulting from abnormal data from the CPU. During operation, this setting must be returned to "OPE".

If this is set to "OFF", levels cannot be controlled from any remote controller, etc.

#### Notice

This setting is valid only while the camera power is supplied. When the camera power is turned OFF, the setting is reset to "OPE".

#### [ SEMI SELF MODE ]

When this is set to "ON", the camera adjustment data set by a remote controller can be called out.

For instance, after adjusting the camera with a remote controller, when using the camera separately by disconnecting the remote controller, setting "SEMI SELF MODE" to "ON" allows you to operate the camera with the ON/OFF and level settings adjusted by the remote controller retained.

When "SEMI SELF MODE" is set to "OFF", the camera returns to the normal level setting status (status set by PROC LEVEL PRESET), but if it is set back to "ON", the adjustment data set by the remote controller can be called out at any time.

#### [ SEMI REMOTE MODE ]

When this is set to "ON", some of the control right over the ON/OFF items in the remote control mode (when a remote controller is being connected and is controlling the camera) can be transferred to the camera. At this time, ON/OFF settings cannot be made from any remote controller.

When this is set to "ON", you can operate the switches listed below on the camera right side and front side.

- GAIN SELECT switch
- AWB SELECT switch
- OUTPUT SELECT switch
- SHUTTER/SUP-V switch

### b) AWB/ABB MODE

Set AWB operating modes. And, create the AWB and ABB reference files.

AWB/ABB MODE	
QUIT	
AWB WITH A.IRIS	ON
AWB WITH C.TEMP	OFF
SHOCKLESS AWB	ON-1.0s
FILTER AWB MEM	OFF
AWB REFERENCE	OFF
REFERENCE SET	AWB

#### [ AWB WITH A.IRIS ]

Set whether the lens is to be forcibly set to the auto iris mode during AWB execution.

When this is set to "ON", the lens is forcibly set to the auto iris mode during AWB execution; when this is set to "OFF", AWB is executed in the iris mode at the time.

#### [ AWB WITH C.TEMP ]

During AWB execution, the camera measures the color temperature of the subject and if necessary, it uses the electrical color temperature filter.

#### [ SHOCKLESS AWB ]

Set the time for switching the AWB memory.

As the AWB memory data is gradually switched according to the set time, this reduces the shock occurred when switching is performed.

- **OFF** : Switches memory data at once.
- **ON-0.3s** : Gradually switches memory data in 0.3 seconds.
- **ON-0.5s** : Gradually switches memory data in 0.5 seconds.
- **ON-1.0s** : Gradually switches memory data in 1.0 seconds.
- **ON-1.5s** : Gradually switches memory data in 1.5 seconds.
- **ON-2.0s** : Gradually switches memory data in 2.0 seconds.

#### Notice

When "AWB WITH C.TEMP" is set to "ON", the SHOCKLESS AWB function cannot be used.

When "AWB WITH C.TEMP" is set to "ON", the "SHOCKLESS AWB" will automatically be set to "OFF".

**[ FILTER AWB MEM ]**

The AWB memories can be set for each optical filter (CC filter).

- **OFF** : Two memories A and B can be stored.
- **ON - POS.** : Two memories A and B can be stored for each CC filter. Therefore, a total of 8 memories can be stored.
- **ON - TEMP** : Two memories A and B can be stored for each color temperature (3000K, 5600K) of CC filters. Therefore a total of 4 memories can be stored.

**[ AWB REFERENCE ]**

Select "ON" when executing the AWB using user setting as the AWB convergence value.

When this is set to "OFF", Rch and Bch gains are controlled in such a way that their levels are the same as that for the Gch.

Normally, set to "OFF".

**[ REFERENCE SET ]**

- **AWB** : The current white balance status is stored in the memory as the convergence value for AWB execution ("AWB REFERENCE" is set to "ON").
- **ABB** : The current black balance status is stored in the memory as the convergence value for ABB execution.

1. Accurately adjust PEDESTAL (R, G, B) or GAIN (R, B) using a remote controller, etc.
2. Set the AUTO W/B BAL switch to "ABB" or "AWB".
3. Press the SET button.  
"PUSH SET -> START" appears on the menu.
4. Press the SET button again to create the reference data.  
To cancel creating, press the VF CHAR button to close the menu.

During execution, "MEASURING..." appears; upon completion, "COMPLETED" appears.

When the white balance or black balance level measurement has failed, "MEASURE ERROR" appears. If the misoperation prevention function is activated, "UNABLE TO EXECUTE !" appears and the execution is not performed.

The created reference is stored in the memory as the reference file.

**Notice**

In order to prevent a misoperation, usually set S202 on the MPU module to "OFF". Doing this protects the reference file from unintentional renewal.

**c) AUTO IRIS SET****[ IRIS SET MODE, IRIS LEVEL SET, PEAK RATIO SET ]**

Set the response characteristics of the auto iris of the lens to attain optimum video level by automatically controlling the lens iris in accordance with the changes in the amount of light.

Set the sub menu "IRIS SET MODE" to "ON".

This enables "IRIS LEVEL SET" and "PEAK RATIO SET" to be set.

AUTO IRIS SET		
QUIT		
IRIS SET MODE	OFF	
IRIS LEVEL SET	-60	
PEAK RATIO SET	-50	
IRIS LIMIT	F22	
LENS ADJUST	OFF	

1. Select and decide "IRIS LEVEL SET".
2. Shoot a registration chart, select value for "IRIS LEVEL SET" using the rotary pulse switch so that the video level is 75%, and press the SET button to decide the setting.
3. Select and decide "PEAK RATIO SET".
4. Shoot a gray scale chart, select value for "PEAK RATIO SET" using the rotary pulse switch so that the video level is 100%, and press the SET button to decide the setting.
5. Repeat steps 1 to 4 several times and set the two values which will yield a video level of 75% when the registration chart is shot and a video level of 100% when the gray scale chart.
6. Return the sub menu "IRIS SET MODE" to "OFF" (this is automatically set to "OFF" when the menu closes).

**Notice**

The iris can no longer be adjusted from a remote controller while this setting is set to "ON".

**[ IRIS LIMIT ]**

When attempts are made to close the iris during auto iris operations, as hunting of the iris is suppressed, iris operations are stopped before the iris is completely closed. Set the iris value (limit value) at this time.

- **F22** : limit value F22
- **F20** : limit value F20
- **F18** : limit value F18
- **F16** : limit value F16

**Notice**

While the IRIS LIMIT function works, the F value indication blinks on the viewfinder screen.

**[ LENS ADJUST ]**

As the relation between the lens control voltage value and lens iris value is adjusted, the control voltage corresponding to F2.8 and F16 can be output to the lens.

1. Select and decide "LENS ADJUST".
2. Select "F2.8" using the rotary pulse switch.  
"F2.8" will blink.
3. The iris control voltage corresponding to F2.8 will be output. Adjust the adjuster at the open side of the lens (generally printed as "O") so that the iris reads F2.8.
4. Select "F16" using the rotary pulse switch.  
"F16" will blink.
5. The iris control voltage corresponding to F16 will be output. Adjust the adjuster at the close side of the lens (generally printed as "C") so that the iris reads F16.
6. Repeat steps 2 to 5 several times, and adjust the adjusters at the lens side so that F2.8 and F16 correspond to their readings of the lens.
7. After adjusting, set "LENS ADJUST" to "OFF" and press the SET button.  
(When the menu mode is ended, the setting will automatically be set to "OFF".)

**Notice**

As the control voltage will be output to the lens when "F2.8" and "F16" are selected by the rotary pulse switch, so there is no need to press the SET button here.

Pressing the SET button while "F2.8" or "F16" is displayed automatically returns to "OFF" and ends "LENS ADJUST".

**d) G.L. PHASE ADJUST**

When synchronizing the camera with a synchronizing signal of other system by applying genlock to the camera, input a reference signal (black burst signal or composite video signal) to the GENLOCK IN connector (BNC type) on the camera left side.

At this time, it is necessary to tally the phase of the SC (subcarrier) signal and H phase in the camera with that of the reference signal.

G.L. PHASE ADJUST	
QUIT	
SC COARSE	0
FINE	0
H PHASE	0

**[ SC COARSE, FINE ]**

"SC COARSE" can be set to "0" or "+100", which switches the SC (subcarrier) signal phase by 180 degrees.

"FINE" is used to make fine adjustment.

1. Set "FINE" to "0" (center value) before setting "SC COARSE".
2. After making coarse adjustment at "SC COARSE", make fine adjustment at "FINE" to tally the subcarrier phase in the camera with the reference signal phase.

**[ H PHASE ]**

1. Select and decide "H PHASE".
2. Tally the horizontal phase in the camera with the reference signal phase using the rotary pulse switch.

**Notice**

This function is activated while a video signal is input to the GENLOCK IN connector on the camera left side.

**e) LENS SELECT**

The color balance changes resulting from differences in the optical properties of lenses can be stored in the lens files in advance. Even if WHT SHADE has changed as the extender is employed, or a lens made by a different maker or a lens having different magnification is to be used, there is no need for readjustment. The optimum parameters can be set when you only select the lens number on the menu.

Up to 8 lens files are available so that the lens files can be used even when a prompter or external filter is used. Two statuses (extender OFF, extender ON) can be stored in each file. The data are switched automatically by answer signals from the lens.

All currently marketed lenses with 12-pin connector have the answer signal function. Old lenses (with 6-pin connector) can still be used with a 6-pin -> 12-pin conversion cable, but since they do not have the answer signal function, extender ON is not detected and the data cannot be switched.

**Notice**

LENS FILE can be created automatically if the auto white shading function is used.

LENS SELECT	
QUIT	
FILE	ON
NUMBER	NO.1
NAME	( )
SET MODE	OFF

**[ Calling out Lens File ]**

1. Select and decide "LENS SELECT".
2. Set "FILE" to "ON".
3. Select and decide "NUMBER".
4. Select and decide the number of the desired file to be called out.

**Notice**

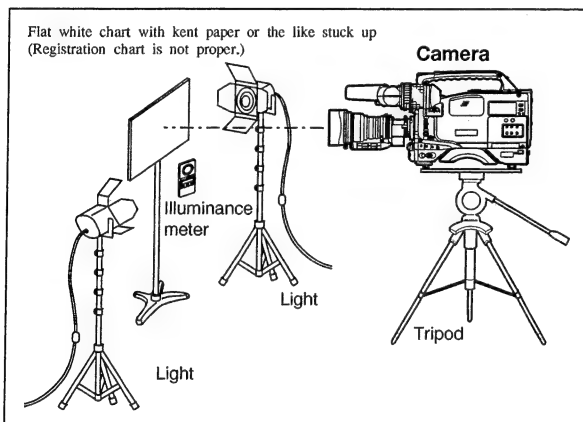
In the steps for calling out a lens file described above, it is assumed that the lens file has already been registered.

**[ Creating Lens File ]**

Check the following matters before creating lens files.

- Select the optical filter of 3000K.
- Do not mount any special effect filter before the lens or in the built-in filter disk.

1. Set the camera to the level setup status.



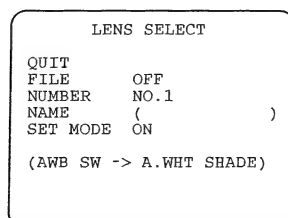
2. Remove the right side cover of the camera and set S202 on the MPU module to "ON" to release the inhibited registration of lens files.

As accurate adjustment is required for creating lens files, no registration is usually accepted to prevent the wrong data entry due to misoperation.

3. Set "SET MODE" to "ON".

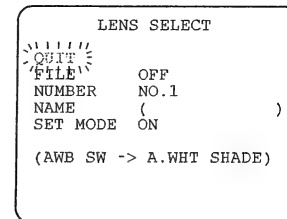
When "SET MODE" is set to "ON", input data for lens files can be accepted and when the AUTO W/B BAL switch is set to "AWB", the auto white shading function is executed.

"(AWB SW -> A.WHT SHADE)" appears on the viewfinder screen.



4. Create the LENS OFF FILE.

- Set "FILE" to "OFF".
- Mount the usual lens on the camera.
- Set "NUMBER" and other items and then select "QUIT" with the blinking cursor (unless creation is done in this status, data may not be correctly input).



- Press the AUTO W/B BAL switch on the camera front side down to "AWB" position.  
The auto white shading is executed to make the LENS OFF FILE automatically.

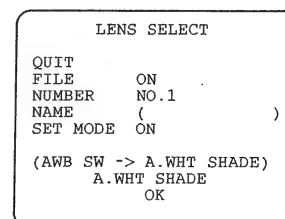
**Notice**

Check the following matters in creating the LENS OFF FILE.

- Prepare a uniform white chart on which Kent paper is stuck as a subject.  
As a registration chart is unbecoming, use of white chart is recommended.
- Illuminate the chart uniformly using an illuminance meter.
- The LENS OFF FILE is used as reference value for "FILE". "FILE" is used to memorize the difference between this reference value and the value of the intended lens.
- The usual lens means frequently used one.

5. Create a lens file for a lens.

- Remove the usual lens and mount another lens on the camera.
- Set "FILE" to "ON".
- Select the number from NO.1 to NO.8 at "NUMBER".
- Put the extender off (extender OFF).
- Execute the auto white shading in the same procedures as step 4 (LENS OFF FILE). After execution, the lens file is created.
- When also using the extender (extender ON), create the lens file in the same way as above (extender OFF).



6. Next, create lens files for other different lenses.

Repeat the same procedure as step 5 (Create a lens file for a lens) for lens files to be created.

**Notice**

- Data will be updated when a file is created for the same LENS No.
- Right after the auto white shading is finished, the automatically adjusted setting value until now is cleared. This is the process for storing lens files in the memory inside of the camera. It is not a fault.

## 7. Action taken after lens files have been created.

- Be sure to set "SET MODE" to "OFF".
- In order to protect the data, remove the right side cover of the camera and set S202 on the MPU module to "OFF".

LENS SELECT	
QUIT	
FILE	ON
NUMBER	NO. 8
NAME	( )
SET MODE	OFF

**Notice**

- When creating lens files, make sure that every preparation is made, that all lenses for which files are required are ready and that the files are all created under the same conditions. Accurate settings cannot be made if the conditions are changed while the files are being created.

Since lens files are used to store level differences between lenses, if different lighting or a different chart is used, it will be difficult to identify whether level differences come from lenses, lighting, or charts.

- LENS NO. is number expression.
- When the camera is shipped, the compensation data based on the factory standard lens is registered in No.1.

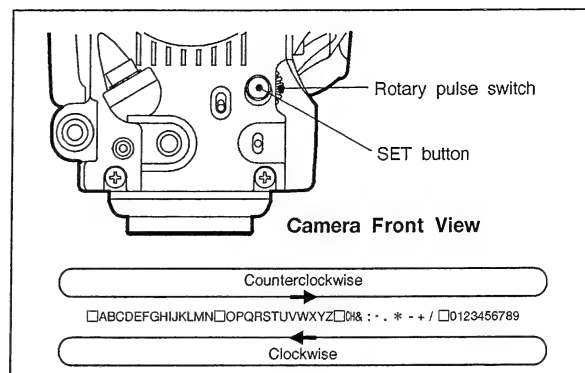
**[ NAME (Entering Lens File Name) ]**

A name can be assigned to each lens file number.

Assigning the lens model number, etc. makes it easy to identify correspondence between the file number and the lens.

1. Select the file number to be given a name at "NUMBER".
2. Select and decide "NAME".  
The blinking cursor moves and the character input mode is set.
3. Select and decide the desired characters using the rotary pulse switch and the SET button.
4. After all characters are decided in the parentheses, the character input mode ends and the file name is updated. If the name is less than 12 characters, be sure to enter blanks to make up 12 characters. If less than 12 characters are entered, the character input mode will not end.

Turning the rotary pulse switch switches characters to be entered as follows.

**Notice**

We recommend that you name lens files according to the type of lenses.

**f) EXT VTR REC CONTROL**

Set this when you mount the optional VTR adaptor and use an external VCR for recording.

EXT VTR REC CONTROL	
QUIT	
CONTROL MODE	EDGE TRIG
REC PRIORITY	PARALLEL
COMP LEVEL	MODEL
26P VIDEO OUT	AUTO

**[ CONTROL MODE ]**

Set the VCR start/stop control system according to an external VCR to be used. As there are 5 control systems as below, set this to one of them according to the specifications of the external VCR.

**Reference**

Refer to the instruction manual of the external VCR to be used.

- **EDGE TRIG** : Starts/stops the VCR at the changing of control signal level from Hi to Lo or Lo to Hi.
- **HI LVL REC** : When control signal is at Hi level, the VCR is in REC start state, and when it is changing from Hi to Lo, the VCR is stopped.
- **LO LVL REC** : When control signal is at Lo level, the VCR is in REC start state, and when it is changing from Lo to Hi, the VCR is stopped.
- **POSI PULSE** : Starts/stops the VCR when a positive pulse as control signal is supplied.
- **NEGA PULSE** : Starts/stops the VCR when a negative pulse as control signal is supplied.

**Notice**

"EDGE TRIG" and "HI LVL REC" (SMPTE) systems are mainly used to start/stop VCRs for broadcasting. If you do not recognize control system for a VCR to be used, try "EDGE TRIG".

**[ REC PRIORITY ]**

This function is used to give priority to which VCR (internal VCR or external VCR). That is to say, control signals by the operation of the camera's VTR START button, the lens' VTR (START/STOP) button and the camera's VTR STBY/SAVE switch can be set to be output to one VCR preferentially. In addition, each tally control signal can be set to be output to which tally lamp (front tally, rear tally, back tally, viewfinder's upper tally and lower tally lamps). However, this setting is available only with an external VCR connected.

- **PARALLEL** : Control signals are simultaneously output to both external and internal VCRs, so it makes simultaneous parallel recording possible. At this time, the front tally, rear tally, back tally lamps and the upper tally lamp in the viewfinder indicate the status of the internal VCR, and the lower tally lamp in the viewfinder indicates the status of the external VCR. However, when no tape is inserted in the internal VCR, the same operation as "EXT VTR" mode is done.)
- **EXT VTR** : Control signals are output to only the external VCR. While the operation of the VTR STBY/SAVE switch on the camera is effective only to the external VCR, the internal VCR is forcedly set to the POWER SAVE status. All the tally lamps (front, rear and back tally lamps and upper/lower tally lamps in the viewfinder) indicate the status of the external VCR. When the RET button on the lens is pressed during recording or playback with the external VCR, returned picture from the external VCR is displayed on the viewfinder screen (when "RET SOURCE" of "OTHERS" on the camera menu is set to "EXT VIDEO").
- **INT VTR** : Control signals are output to only the internal VCR. If you operate the external VCR, you can record pictures with both VCRs simultaneously. Simultaneous recording can also be performed without suffering an influence from VCR start/stop control at the camera side. At this time, the front tally, rear tally, back tally lamps and the upper tally lamp in the viewfinder indicate the status of the

internal VCR. The lower tally lamp in the viewfinder indicates the status of the external VCR.

**[ COMP LEVEL ]**

Set level of component video signals which are output to the external VCR.

- **MODE1** : Betacam level
- **MODE2** : MII level

**Notice**

- The "REC PRIORITY" setting is effective in VCR start/stop control and tally indication from the remote controller RM-11. The tally lamp on the remote controller corresponds to the front tally of the camera.
- Refer to the instruction manual of an external VCR to be used for the meaning of tally indication at the external VCR as it is due to the specifications of the VCR.
- When the tape of one VCR comes to an end during simultaneous parallel recording, the other VCR continues to record. When doing simultaneous parallel recording again, replace the cassette tape, whose tape has come to an end, with a new one and press the VTR START button of the camera or the VTR button of the lens in the case of the internal VCR. In the case of the external VCR, restart recording by operating the external VCR. In any case, recording will continue without discontinuing the other VCR.
- Note that recording review function of an external VCR does not work.
- Video signal output from the VTR connector (26-pin) is component video signal which the camera outputs. Note that the video signal reproduced by the internal VCR cannot be directly recorded by an external VCR via the VTR connector.
- Informations on VCR which is displayed on the viewfinder screen of the camera shows the condition of the internal VCR except for tally indication. Note that the condition of the external VCR is not displayed except for tally indication.
- When starting recording with an external VCR, temporarily stop recording with the external VCR by operating the external VCR. Thereafter, you can start/stop recording by operating the internal VCR or external VCR.
- When the "REC PRIORITY" setting is changed during VCR recording, both internal and external VCR stop recording.

### [ 26P VIDEO OUT ]

Set the output mode of video signal to be output to an external VCR.

- **AUTO** : Connection of an external VCR is detected, and video signal is output.
- **ON** : Video signal is always output.

### g) VIDEO PROCESS MODE

VIDEO PROCESS MODE		PROCESS MODE GROUP1	
QUIT		QUIT	
CAL PULSE	OFF	GAMMA	0.45
GRP1-GAMMA•FLARE•MATRIX		GAMMA CURVE	NORMAL
CHROMA•COLOR SAT		FLARE	ON
C.TEMP•BLK STRETCH		MATRIX	ON
GRP2-KNEE•WHT CLIP•SHADE		CHROMA	ON
GRP3-DTL•APERTURE		COLOR SAT	OFF
LEVEL SET		C.TEMP 5600K	OFF
		BLK PRS/STR	OFF

PROCESS MODE GROUP2		PROCESS MODE GROUP3	
QUIT		QUIT	
KNEE	ON	DTL	ON
KNEE MODE	AUTO	SOFT DTL	OFF
WHITE CLIP	ON	SKIN DTL	OFF
WHITE SHADE	ON	SLIM DTL	OFF
BLACK SHADE	ON	DIAGONAL DTL	ON
		DTL B/W BAL	1
		KNEE APERTURE	ON

### [ CAL PULSE, GRP1, 2, 3 ]

Select one of the preset settings; ON/OFF for video process items, and one among -7%, -5%, -3%, OFF, 3%, 5% and 7% for BLK PRS/STR.

Perform the same step of procedure as above mentioned for each item.

### [ LEVEL SET ]

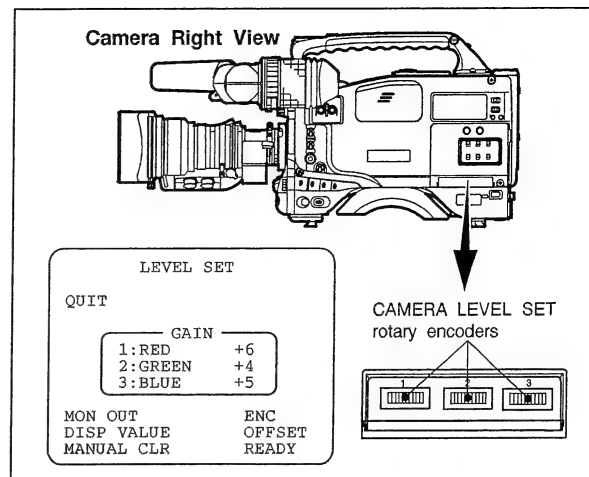
When checking data value for the camera whose level has been adjusted with a remote controller, etc. or adjusting level with the camera alone, select "LEVEL SET".

#### Check

1. Select and decide "CONTROL FUNCTION".
2. Rotate the rotary pulse switch to select the desired function and check each parameter setting.
3. After checking, press the VF CHAR button.

#### Adjusting level with camera alone

1. Select and decide "CONTROL FUNCTION".
2. Rotate the rotary pulse switch to select the desired function.
3. Rotate CAMERA LEVEL SET Rotary Encoders on the camera right side to select the desired value (1, 2 and 3 are assigned to the encoders from left to right and they correspond to FUNCTION No. on the menu).



4. To clear adjusted data and return to previous data, select and decide "PUSH SET -> CLR" on the sub menu "MANUAL CLR" to execute it.

Adjusted data on the item which is displayed at the present FUNCTION is cleared and returned to the former state.

To cancel clearance, select and decide "CANCEL" to execute it.

In addition, "READY", "PUSH SET" and "CANCEL" are available on the sub menu "MANUAL CLR". Normally, set to "READY" position.

### MON OUT (Switching Video Signal for MONITOR OUT)

For some adjusting items at LEVEL SET, video signal for the MONITOR output may need to be switched to Y signal or R, G, B signals.

In this case, video signal to be output to the MON OUT connector can be switched to (ENC, Y, R+G+B, R, G, B, R-G or B-G) at the camera menu "MONITOR OUT".

Select and decide the desired output signal.

#### Notice

- This MON OUT function is the same function as "OUTPUT SIGNAL" of "MONITOR OUT" on the NORMAL MENU and MAINTENANCE MENU. Regardless of which menu the setting is made at, the signal set later will be output from the MON OUT connector.
- This setting is valid only while camera power is turned on. When the power is turned off, the setting will be reset to "ENC".

### DISP VALUE (Changing Indication of Setting Value)

The indication of setting values for functions can be changed as follows at "DISP VALUE" if necessary.

- **ABSOLUTE** : Displays the absolute value.
- **OFFSET** : Displays the factory setting as zero.

Table of Level Adjustment Items

Items	Detail Items
GAIN	RED, GREEN, BLUE
GAMMA	RED, GREEN, BLUE
GAMMA	MASTER
FLARE	RED, GREEN, BLUE
MANUAL KNEE	POINT, SLOPE
AUTO KNEE	POINT, SLOPE
DTL (1/2)	GAIN, FREQ, H/V BALANCE
DTL (2/2)	THRESH, NOISE SUP
SOFT DTL	WHT SUP, BLK SUP
SKIN DTL	R HUE, GAIN, B HUE
WHT CLIP	CLIP LEVEL
MATRIX	R-G, R-B
MATRIX	G-R, G-B
MATRIX	B-R, B-G
ENCODER	COL SAT
G.L. PHASE	SC COARSE, FINE, H PHASE
R WHT SHADING	H SAW, H PARA
R WHT SHADING	V SAW, V PARA
G WHT SHADING	H SAW, H PARA
G WHT SHADING	V SAW, V PARA
B WHT SHADING	H SAW, H PARA
B WHT SHADING	V SAW, V PARA
R BLK SHADING	H SAW, H PARA
R BLK SHADING	V SAW, V PARA
G BLK SHADING	H SAW, H PARA
G BLK SHADING	V SAW, V PARA
B BLK SHADING	H SAW, H PARA
B BLK SHADING	V SAW, V PARA
BLACK SET	RED, GREEN, BLUE
PED	MASTER
PED	RED, GREEN, BLUE

### h) SCREEN ASPECT MODE (for HL-DV7W)

1. Select and decide "ASPECT RATIO".
2. Select and decide "16:9" or "4:3".

```

SCREEN ASPECT MODE
QUIT
ASPECT RATIO      16:9
  
```

### i) MEMORY CARD

```

MEMORY CARD
QUIT
LOAD FILE      (
LOAD DATA      SCENE1-8
LOAD(->CAMERA)
SAVE FILE      (
SAVE DATA      SCENE
SAVE(->M.CARD)
M.CARD NAME    (
  
```

#### Reference

Refer to "4.7 Using Memory Card" for how to operate this menu.

### j) OTHERS

#### Reference

Refer to "OTHERS" of "(1) NORMAL MENU" for how to operate this menu.

## k) INFORMATION

### [ WORKING TIME ]

The total operating time of the camera is displayed.

### [ SYSCON ROM VERSION ]

- **CAMERA** : Displays the camera ROM version.

```

INFORMATION
QUIT
WORKING TIME      0000.0h
SYSCON ROM VERSION
*CAMERA          :STR-*****
  
```

The actual accumulated working time is in the □ section.  
The actual version numbers are in the ※ section.

## l) MENU CUSTOMIZE

Items to be displayed on the NORMAL MENU and the order they are displayed can be set as desired by the user.

1. Select and decide "MENU CUSTOMIZE".

The sub menu below is displayed.

The items currently set to be displayed on the NORMAL MENU are shown with a "✓" mark.

```

MENU CUSTOMIZE
(10/10)
QUIT
VF DISPLAY
MONITOR OUT
ZEBRA INDICATOR
EFFECT INDICATOR
BARS TITLE
MID/HIGH GAIN MODE
BATT/TAPE WARNING
SCENE FILE
LEVEL ADJUST
  
```

2. Rotate the rotary pulse switch to scroll the items. The remaining items can be displayed as follows.

```

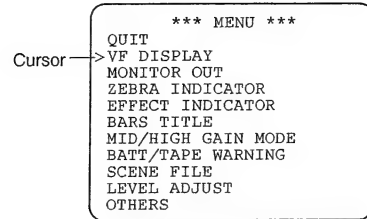
MENU CUSTOMIZE
(10/10)
QUIT
VF DISPLAY
MONITOR OUT
ZEBRA INDICATOR
EFFECT INDICATOR
BARS TITLE
MID/HIGH GAIN MODE
BATT/TAPE WARNING
SCENE FILE
LEVEL ADJUST
CPU SYSTEM CONTROL
AWB/ABB MODE
AUTO IRIS SET
G.L. PHASE ADJUST
LENS SELECT
VIDEO PROCESS MODE
SCREEN ASPECT MODE
MEMORY CARD
OTHERS
INFORMATION
- CUSTOMIZE DISPLAY -
  
```

3. Select and decide an item to be added or deleted to move the blinking cursor to its square.
4. Rotate the rotary pulse switch to add or remove the "✓" mark.
5. Press the SET button.



6. The selected items can be arranged in the desired order at "CUSTOMIZE DISPLAY".

Select and decide "CUSTOMIZE DISPLAY" to display the following sub menu.



7. Select and decide the desired item to be arranged in the desired order by rotating the rotary pulse switch.  
"→" will be displayed next to the item.
8. Rotate the rotary pulse switch to move the item to the desired position.
9. After moving to the desired position, set by pressing the SET button.

#### **Notice**

Up to ten items can be displayed on the NORMAL MENU (set at least one item).

To add another item when ten are already set, delete an unwanted item first before adding. The number of currently set items is displayed in the parentheses at the top right on the menu.

## 4.15 Table of Remote Controller Operations

## [ ON/OFF Setting Items ]

CONTROL FUNCTION	RCP-11	RCP-50	RM-11	RS-11	Camera
BLACK SHADE WHITE SHADE FLARE KNEE AUTO KNEE	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
WHITE CLIP DTL SOFT DTL SKIN DTL SLIM DTL	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>		<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
DIAGONAL DTL KNEE APERTURE COLOR SATURATION CHROMA MATRIX	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>		<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>
SHUTTER SHUTTER VAR/PRST SHUTTER SPEED SELECT (*1) BLACK STRETCH BLACK PRESS/STRETCH SELECT	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> (-7/-5/-3/OFF/ +3/+5/+7%)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> (-7/-5/-3/OFF/ +3/+5/+7%)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> (+3/+5/+7%)	<input type="radio"/> <input type="radio"/> <input type="radio"/> (*5) <input type="radio"/> <input type="radio"/> (-7/-5/-3/OFF/ +3/+5/+7%)
GAMMA GAMMA SELECT SUPER-V SELECT C. TEMP 5600K MASTER GAIN SELECT (*2)	<input type="radio"/> <input type="radio"/> (OFF/0.45/0.40/0.35) <input type="radio"/> <input type="radio"/> <input type="radio"/> (-3/0/+3/+6/+9/+12/ +18/+30/+36/+42/ +48dB)	<input type="radio"/> <input type="radio"/> (OFF/0.45/0.40/0.35) <input type="radio"/> <input type="radio"/> <input type="radio"/> (-3/0/+3/+6/+9/+12/ +18/+30/+36/+42/ +48dB)	<input type="radio"/> <input type="radio"/> (0dB/MID/HIGH)	<input type="radio"/> <input type="radio"/> (OFF/0.45/0.40/0.35) <input type="radio"/> <input type="radio"/> <input type="radio"/> (-3/0/+3/+6/+9/+12/ +18/+30/+36/+42/ +48dB)	<input type="radio"/> <input type="radio"/> <input type="radio"/> (*5) <input type="radio"/> <input type="radio"/> (0dB/MID/HIGH)
IRIS AUTO/MAN (*3) CAMERA CALL MONITOR SELECT  SCENE FILE  AWB/ABB	<input type="radio"/> <input type="radio"/> <input type="radio"/> (R/G/B/R+G+B/ENC)  <input type="radio"/> (No1 to No8 File Recall/Store) <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> (R/G/B/R+G+B/Y/ ENC)  <input type="radio"/> (No1 to No8 File Recall/Store) <input type="radio"/>	<input type="radio"/> <input type="radio"/> (R/G/B/R+G+B/ENC)  <input type="radio"/>	<input type="radio"/>  <input type="radio"/> (R/G/B/ENC)  <input type="radio"/> (No1 to No8 File Recall/Store) <input type="radio"/>	<input type="radio"/> (LENS SIDE)  <input type="radio"/> (R/G/B/R+G+B/ R-G/B-G/Y/ENC)  <input type="radio"/> (No1 to No8 File Recall/Store) <input type="radio"/>
EFFECT (BLK SET WOBBING) MEMORY CARD OPERATION AWB/ABB REF SET FILE TRANSFER MANUAL CLEAR	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>		<input type="radio"/>  <input type="radio"/>  <input type="radio"/>	    <input type="radio"/>  <input type="radio"/>
MANUAL SET CAP BARS CAL SKIN KEY	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/>  <input type="radio"/>	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	    <input type="radio"/>  <input type="radio"/>
R TALLY IND (*4) VTR START/STOP VTR REMOTE(STOP,PLAY,REW,FF) WHITE BAL SELECT CC FILTER SELECT	<input type="radio"/>   <input type="radio"/> (OFF/Ach/Bch/ HEAD) <input type="radio"/>	<input type="radio"/>   <input type="radio"/> (OFF/Ach/Bch/ HEAD) <input type="radio"/>	<input type="radio"/>   <input type="radio"/> (OFF/Ach/Bch)	   <input type="radio"/> (OFF/Ach/Bch/ HEAD) <input type="radio"/> (IND Only)	<input type="radio"/> (OFF/Low/High) <input type="radio"/>  <input type="radio"/> (PRST/Ach/Bch) <input type="radio"/>
WIDE SCREEN LENS FILE	<input type="radio"/> <input type="radio"/>	<input type="radio"/> <input type="radio"/>			<input type="radio"/> <input type="radio"/>

\* 1 : The shutter speed can be set to VAR, 1/100, 1/120, 1/250, 1/500, 1/1000 or 1/2000.

\* 2 : "MID" and "HIGH" can be set to -3, +3, +6, +9, +12, +18 or +30dB on the menu.

\* 3 : When the camera is used, this setting can be made at the lens side.

\* 4 : When the camera is used, brightness of R TALLY IND (LOW, HIGH) can be switched.

\* 5 : These settings can be switched by the rotary pulse switch.

## [ Level Setting Items ]

CONTROL FUNCTION	RCP-11	RCP-50	RM-11	RS-11	Camera
BLACK SHADE H/V PARA BLACK SHADE H/V SAW WHITE SHADE H/V PARA WHITE SHADE H/V SAW BLACK SET	<input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B)	<input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B)		<input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B)	<input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9)
PEDESTAL FLARE GAMMA GAIN KNEE POINT	<input type="radio"/> (R/G/B/MASTER) <input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B/MASTER) <input type="radio"/> (R/G/B) <input type="radio"/> (AUTO/MANU)	<input type="radio"/> (R/G/B/MASTER) <input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B/MASTER) <input type="radio"/> (R/G/B) <input type="radio"/> (AUTO/MANU)	<input type="radio"/> (R/B/MASTER)  <input type="radio"/> (R/B) <input type="radio"/> (AUTO/MANU)	<input type="radio"/> (R/G/B/MASTER) <input type="radio"/> (R/G/B) <input type="radio"/> (R/G/B/MASTER) <input type="radio"/> (R/G/B) <input type="radio"/> (AUTO/MANU)	<input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9)
KNEE SLOPE DTL GAIN DTL BOOST FREQUENCY DTL THRESHOLD DTL BALANCE	<input type="radio"/> (AUTO/MANU) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> (AUTO/MANU) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> (AUTO/MANU) <input type="radio"/>	<input type="radio"/> (AUTO/MANU) <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9)
DTL NOISE SUPPRESS SOFT DTL SKIN DTL HUE SKIN DTL GAIN WHITE CLIP	<input type="radio"/> <input type="radio"/> (WHT/BLK SUP) <input type="radio"/> (R/B) <input type="radio"/> <input type="radio"/> (R/G/B)	<input type="radio"/> <input type="radio"/> (WHT/BLK SUP) <input type="radio"/> (R/B) <input type="radio"/> <input type="radio"/> (R/G/B)		<input type="radio"/> <input type="radio"/> (WHT/BLK SUP) <input type="radio"/> (R/B) <input type="radio"/> <input type="radio"/> (R/G/B)	<input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9)
COLOR SATURATION MATRIX  VARIABLE SHUTTER SPEED (*6) IRIS CONTROL (*7)	<input type="radio"/> <input type="radio"/> (R-G/R-B/G-R/ G-B/B-R/B-G) <input type="radio"/> <input type="radio"/> (AUTO/MANU)	<input type="radio"/> <input type="radio"/> (R-G/R-B/G-R/ G-B/B-R/B-G) <input type="radio"/> <input type="radio"/> (AUTO/MANU)	<input type="radio"/> <input type="radio"/> (AUTO/MANU)	<input type="radio"/> <input type="radio"/> (R-G/R-B/G-R/ G-B/B-R/B-G) <input type="radio"/> <input type="radio"/> (AUTO/MANU)	<input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*8) <input type="radio"/> (*LENS SIDE)
IRIS PEAK/APL IRIS LEVEL SET CHROMA PHASE	<input type="radio"/> <input type="radio"/> (COARSE/ FINE/H PHASE)	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> (COARSE/ FINE/H PHASE)			<input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9) <input type="radio"/> (*9)

\* 6 : Variable shutter speed range is different for each camera.

\* 7 : When the camera is used, this setting can be made at the lens side.

\* 8 : This setting can be made by the rotary pulse switch.

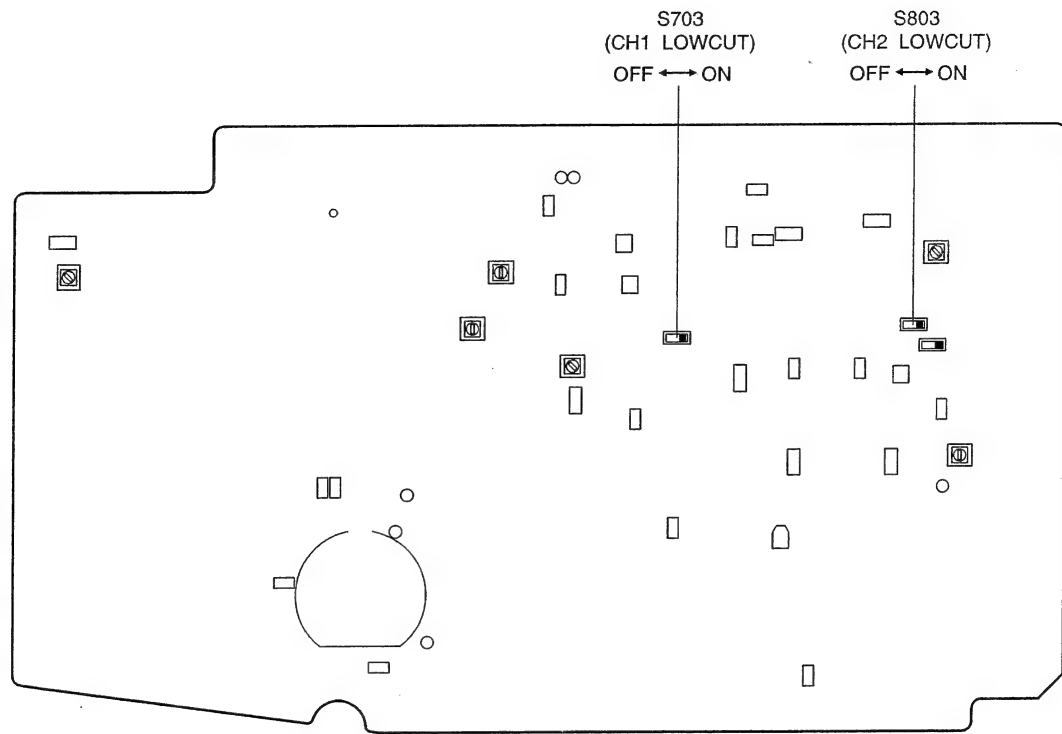
\* 9 : These settings can be made by the CAMERA LEVEL SET rotary encoders on the camera right side.

### 4.16 Audio Low Frequency Cut

The HL-DV5/DV7W has the low frequency cut function on audio input signal.

You can select "ON" or "OFF" with the switches (S703, S803) on the SYSCON/AUDIO module.

Normally set to "ON". The frequency characteristics : 200Hz to 10kHz (-3dB)



## 5. OPERATIONS OF VCR SECTION

### 5.1 Cassettes

This product can use standard-size and mini-size DVCAM and DV series metal tape cassettes. (To ensure high-quality playback, editing, and storage of recorded contents, we recommend using highly reliable DVCAM cassettes.)

The following table lists the cassettes that can be used in this product.

Model Name	Size
PDV-64ME / 94ME / 124ME / 184ME	Standard size
PDVM-12ME / 22ME / 32ME / 40ME	Mini size

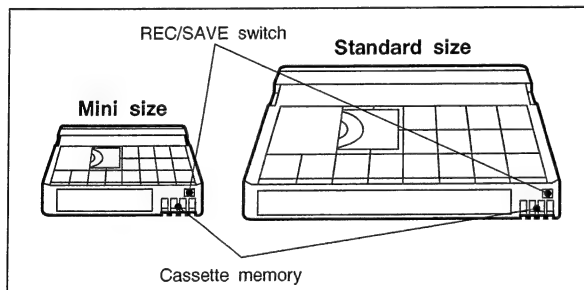
The numbers in the model names show maximum recording/playback time (minutes) for each model. For example, the maximum recording/playback time of the PDV-184ME is 184 minutes.

#### Notice

- If you insert an incorrect type of cassette, it will be automatically ejected.
- When you use a DV cassette, the maximum recording time is reduced to two-thirds of the time indicated on the cassette. For example, up to 40 minutes of recording can be done on a 60-minute DV cassette.

#### [ DVCAM Cassettes ]

The following figure illustrates the DVCAM cassette's appearance.



For ClipLink shooting, a DVCAM cassette including "cassette memory" is necessary. In the cassette memory, data required for editing the recorded video (ClipLink log data) is stored. This product can record or play back the cassettes with cassette memory of 16 kbits or less.

#### Reference

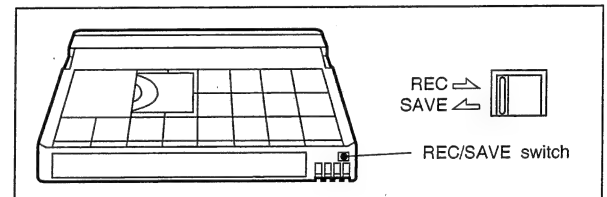
Refer to "5.10 Recording Using ClipLink Function" for details on ClipLink log data.

#### [ Notes on Using Cassettes ]

- Before storing the cassette, rewind the tape to the beginning and be sure to put the cassette in its storage case, preferably on end instead of flat on its side. The storage case of a DVCAM cassette is specially designed to ensure a long-period storage of the tape. Storing a cassette in any other condition (not rewound, out of its case, etc.) may cause the video and audio contents to become damaged over time.
- If the cassette memory connector (contact point) becomes dirty, connection problems may occur and cause a loss of functions. Remove away any dust or dirt from this area before using the cassette.
- If the cassette is dropped on the floor or otherwise receives a hard impact, the tape may become slackened and may not record and play back correctly. For instructions on removing tape slack, see the item below.
- Follow the instructions below to insert a cassette, or this product may be damaged.

#### [ Preventing Accidental Erasure ]

Set the REC/SAVE switch to "SAVE" to prevent accidental erasure of recorded contents.

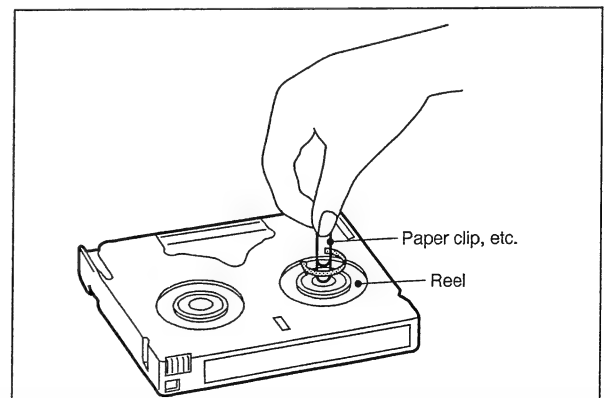


If you insert a cassette into this product with this switch set to "SAVE", this product will not record even if you press the VTR START button.

To enable recording, set the REC/SAVE switch back to "REC".

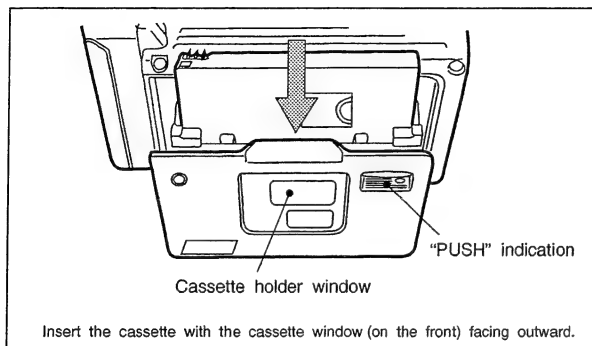
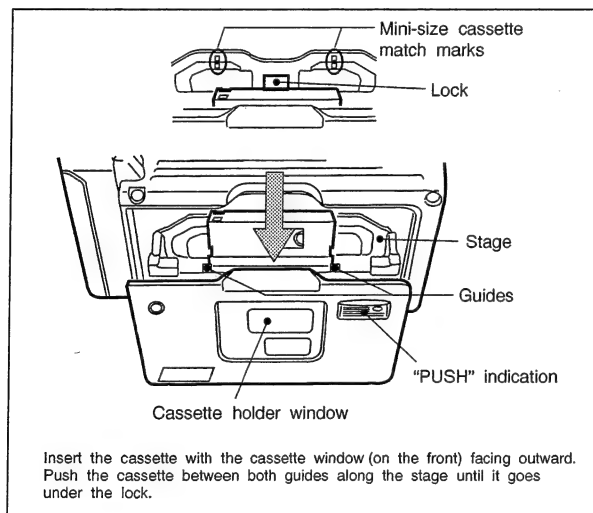
#### [ Checking Tape for Slack ]

Turn the reel gently in the direction shown by the arrow. If the reel does not move, there is no slack.



**[ Inserting Cassettes ]**

Make sure that the cassette's REC/SAVE switch is set to REC, then check for tape slack before inserting the cassette. Then, press the EJECT button to open the cassette holder, and insert the cassette.

**• Inserting a standard-size cassette****• Inserting a mini-size cassette**

Press on "PUSH" on the cassette holder solidly to close the holder.

**Notice**

- Turn the power on and then insert or eject the cassette.
- When inserting a mini-size cassette, confirm the cassette is under the lock (see the above figure), and then close the cassette holder. If the cassette is not inserted fully under the lock, a stopper will prevent the cassette holder from closing when you press down on it.
- Internal parts of this product may become bent or otherwise damaged if you attempt to close the cassette holder after inserting a mini-size cassette in the wrong direction (such as with the cassette turned backside front so the reel holes face the cassette holder window or with the cassette turned sideways

so that a short side enters first).

- If CL appears in the display window when the cassette is loaded, it means that data has already been recorded into the cassette memory. If you record under this condition whether the ClipLink function is available or not, the existing cassette memory data will be overwritten. To avoid this, insert a new cassette.
- After inserting the cassette, close the cassette holder solidly by pressing on the "PUSH" indication on the holder. Unless the cassette holder is closed solidly, the tape will not be loaded and the VTR operation buttons will not function. If you find the VTR operation buttons inoperable, press on the "PUSH" indication again to make sure that the cassette holder is solidly closed.

## 5.2 Shooting

This section describes basic shooting operations.

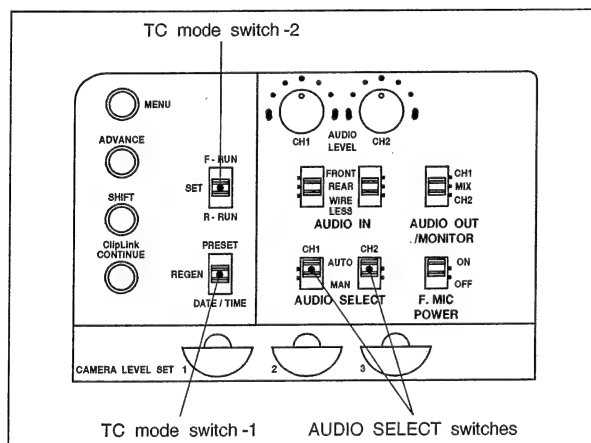
1. Set the POWER switch on the camera right side to "ON".
2. Check the following items in the display window.

- How is the battery ?  
If two or fewer marks appear and the indication is blinking, replace the battery.
- Has the lithium battery been inserted and is it charged ?  
Make sure that the lithium backup battery warning is not shown in the display window. If it is shown, replace the lithium battery.
- Is there a condensation problem ?  
Make sure that the "HUMID" indication is not shown in the display window. If it is shown, do not use the equipment until the "HUMID" indication disappears.

3. Press the EJECT button to open the cassette holder, and insert the cassette.

Make sure that the cassette's REC/SAVE switch is set to REC, then check for tape slack before inserting the cassette. Then, press the EJECT button to open the cassette holder, and insert the cassette.

4. Make the switch settings shown below.
  - AUDIO SELECT switches : AUTO (\*a)
  - TC mode switch -1 : PRESET (\*b)
  - TC mode switch -2 : F-RUN or R-RUN (\*b)



### Reference

- \*a : When this switch is set to "MAN", the recording volume can be manually adjusted. Refer to "5.3 Manually Adjusting Audio Recording Level" for details.
  - \*b : Refer to "5.8 Setting Time Code Value".
5. Using the VTR menu 212, select the audio recording mode (two-channel mode or four-channel mode).

### Notice

If you should switch audio modes during recording, the recordings at switching points prevent editing. Avoid changing the audio mode once you have started recording. One of the following warning indicators appears in the display area when you change the audio mode setting.

- Fs 48k : Attempting to switch from 32-kHz mode (four-channel mode) to 48-kHz mode (two-channel mode).
- Fs 32k : Attempting to switch from 48-kHz mode (two-channel mode) to 32-kHz mode (four-channel mode).

6. Set up the camera to suit your recording objectives, and press the VTR button on the camera front side.

Recording begins when the TALLY lamp stays lit after blinking for a moment. During recording, the VTR operation buttons (EJECT, REW, FF, PLAY, and STOP) cannot be used.

7. When you pause recording, press the VTR START button. When you stop recording, press the VTR START button and then the STOP button.

### Reference

When recording is being paused, tag recording can be performed. But when recording has been stopped, tag recording cannot be performed. Refer to "5.4 Tag Recording" for how to perform tag recording.

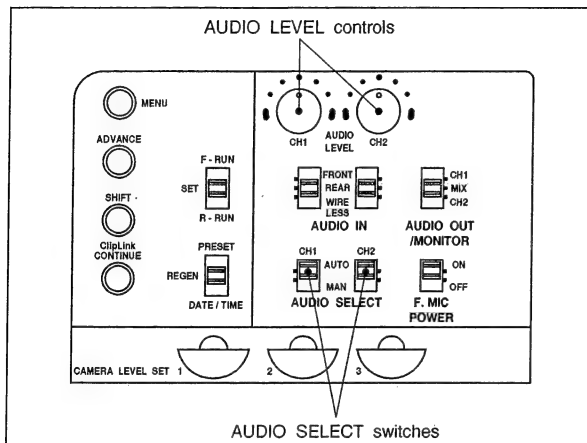
### Notice

- When you will not perform ClipLink shooting, set the ClipLink function to OFF in the VTR menu. Refer to "5.10 Recording Using ClipLink Function" for details on ClipLink shooting, and "5.11 VTR Menu" for how to make setting on the VTR menu.
- Before shooting, it is desirable to make sure for problems in VCR's internal operations using the auto-check function in the VCR. Refer to "5.11 VTR Menu" for how to perform the auto-check.
- When using a tape recorded by this product to transfer digital (video/audio/time code) signals at four times normal speed from this product to the ES-7 EditStation (made by Sony) for editing purposes, there must be about at least 40 seconds of recording on the tape before the IN point. To perform editing without problems, it is recommended that you prerecord at least 40 seconds of color bar signals at the beginning of the tape.

### 5.3 Manually Adjusting Audio Recording Level

Adjustment of audio volume is possible with the AUDIO SELECT switches in the VTR control panel on the camera right side set to "AUTO" (automatically) or "MAN" (manually).

This section describes the procedures for manual adjustment.



1. Set the AUDIO SELECT switch for the channel being used to "MAN".
2. Turn the AUDIO LEVEL control on the camera right side fully clockwise.
3. While checking the audio level in the display window, turn the AUDIO LEVEL control in the VTR control panel so that the maximum audio level is under 0dB.

### 5.4 Tag Recording

This section describes the steps for recording several scenes continuously.

1. Follow steps 1 to 6 in the procedure of "5.2 Shooting" to begin recording.

#### Notice

To continue the time code that has been recorded on the tape, set the TC mode switch -2 to "R-RUN" in step 4 of "5.2 Shooting". Refer to "5.8 Setting Time Code Value" for details on time code.

2. When you have finished recording a scene, press the VTR START button.

This pauses the recording operation.

#### Notice

Do not do any of the followings before the next scene is shot as it will interrupt the tag recording (the recording will not be continuous).

- Remove the cassette.
  - Transport the tape (play, rewind, fast forward).
  - Press the STOP button.
  - Replace the battery when this product is powered.
3. When you are ready to shoot the next scene, again press the VTR START button.

This restarts the recording operation.

4. Repeat steps 2 and 3 for each scene to be shot.

#### Reference

To check the recorded contents immediately after recording, use the recording review function. In this case, pausing state is being kept. Refer to "5.5 Playback" for details on the recording review function.

5. To stop recording, press the VTR START button and then the STOP button.

#### Notice

If there is a long period before shooting the next scene, setting the VTR STBY/SAVE switch to "SAVE" can help this product save power and extend battery usage. However, since it takes time for the recording to start after press of the VTR START button, set the VTR STBY/SAVE to "STBY" beforehand to make the VCR section switch to standby-on mode. Once set in standby-on mode, this product waits a certain (user-definable by the VTR menu 207) period of time and then automatically switches to standby-off mode.

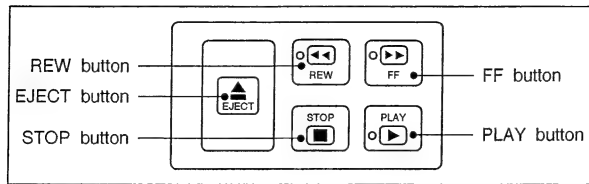
#### [ Starting Tag Recording at Any Tape Position ]

1. Perform steps 1 and 2 of "5.2 Shooting".
2. Insert the cassette containing the previous recording.
3. Perform steps 4 and 5 of "5.2 Shooting".



**Notice**

To continue from the last time code of the previous recording, set TC mode switch -1 to "REGEN" in step 4 of "5.2 Shooting". Refer to "5.8 Setting Time Code Value" for details on time code.



4. Press the PLAY button.  
The recorded contents are displayed on the viewfinder screen.
5. Press the FF or REW button. Then, press the STOP button when the tape reaches the position where the new recording will start.
6. Press the RET button on the lens.  
This rewinds the tape slightly and runs it until the continue point (specified by step 5), then sets the VCR to recording pause state.
7. Press the VTR START button.  
This starts recording.

**Notice**

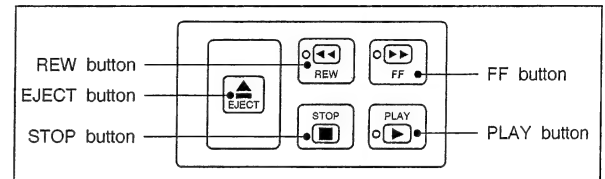
If you set the POWER switch to "OFF" during recording, or when recording is paused, this product automatically goes through its shutdown sequence, then powers off. When you next set the POWER switch to "ON", this product automatically finds the point at which recording ended, and sets itself up so that you can carry on with continuous recording. Note that this operation takes several seconds : do not set the POWER switch to "OFF" or replace the battery during this interval, as the automatic recording continuity will be lost. Note also that the recording continuity is lost in the following case.

- If the POWER switch is set to "ON" and "OFF" repeatedly.
- If the POWER switch is left set to "OFF" for several hours.
- If this product is subject to severe vibration while the POWER switch is set to "OFF".
- If for any other reason the automatic recording continuity function is unable to operate correctly.
- If the lithium battery (CR2032) is exhausted, or if no lithium battery has been fitted.

**5.5 Playback**

You can view playback images of the recording on the viewfinder or monitor screen. Connect a monitor (monochrome or color) to the VIDEO OUT connector on the camera left side.

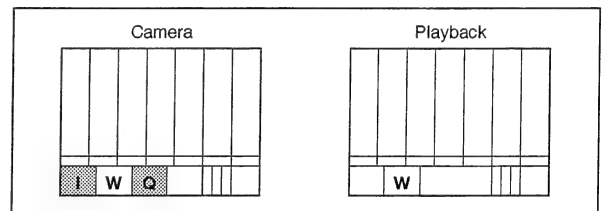
1. Turn on the power.
2. Insert a cassette.
3. Press the PLAY button.  
This starts playback.



4. To fast forward the tape, press the FF button. To rewind the tape, press the REW button. To stop the tape, press the STOP button.

**Notice**

- Playback image of the color bar does not have I and Q bars.



- Playback image of the color bar can be brighter on the viewfinder screen due to chrominance signal.

**[ Recording Review ]**

Immediately after shooting, you can use the recording review function to automatically rewind and play back the last 2 to 10 seconds of the recording to check the recorded contents. To perform recording review, with recording paused, press the RET button on the lens. Depending on how long you hold down the button, the tape is automatically rewound over the last 2 to 10 seconds of the recording, and then this last part of the recording is monitored on the viewfinder screen. You can also listen to the recorded sound via an earphone or the speaker.

After the recorded part is played back, this product automatically returns to the pause state.

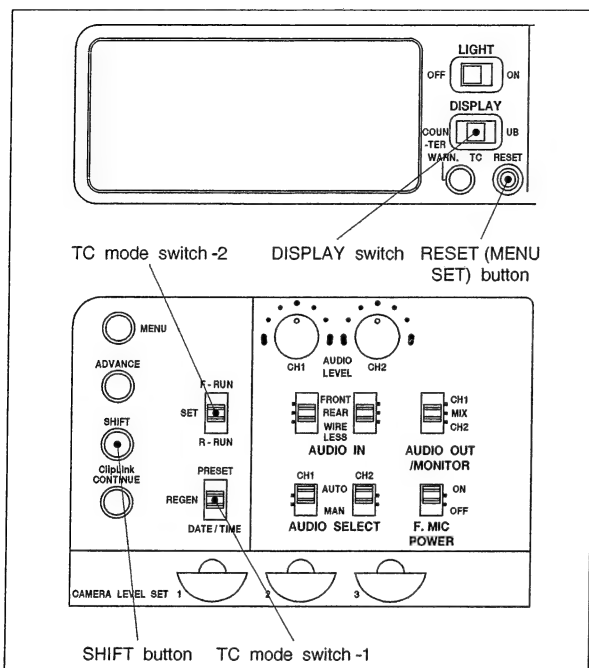
**Notice**

- During recording review, do not set the POWER switch to "OFF". This product may not be able to find the continue point.
- If you press the VTR START button during recording review, this product stops the recording review and starts recording. In this case (when ClipLink mode is OFF), it is impossible to start tag recording.

## 5.6 Switching Time Value Indications

This product uses three types of time values : counter values, time code values, and user bit values.

The time value is displayed in the display window and on the viewfinder screen.



Use the DISPLAY switch to switch time value indications.

- **COUNTER** : Counter of tape transport time
- **TC** : Time code
- **UB** : User bits

### Notice

The time code and user bits cannot be displayed if the tape does not have time code and/or user bits recordings or if the time code was recorded using a non-compatible method.

### [ Resetting Counter ]

The counter value shows the tape running time in hours, minutes and seconds format. Before starting a tape, perform the following steps to reset the counter.

1. Set the DISPLAY switch to "COUNTER".  
The time value indication in the display window shows the current counter value.
2. Press the RESET (MENU SET) button.  
This resets the counter shown in the display window and on the viewfinder screen as "0:00:00".

The counter value starts advancing as the tape is transported. It shows negative values if the tape is rewound past the point where the counter was reset.

### Notice

Discontinuous recording in the tape may cause the counter to malfunction during playback.

### [ Displaying Date/Time ]

This product automatically records the real time of the built-in clock on the tape in addition to time codes and video/audio signals. Perform the following steps to display the date or time instead of the time value.

1. Confirm the followings.
  - The VTR menu is not displayed in the display window.
  - The TC mode switch -1 is set to the position other than "PRESET".
  - The TC mode switch -2 is set to the position other than "SET".
2. Set the DISPLAY switch to "TC" or "UB".
3. Press the SHIFT button.  
While the SHIFT button is being pressed, the date or time is displayed at the location of the time value indication.
  - The time is displayed when the DISPLAY switch is set to "TC".
  - The date is displayed when the DISPLAY switch is set to "UB".

### Reference

Refer to "5.11 VTR Menu" for how to set the built-in clock.

## 5.7 Setting User Bit Value

You can set the user bits as eight-digit hexadecimal values (base 16) to have the date, time, scene number, and other information recorded into the tape.

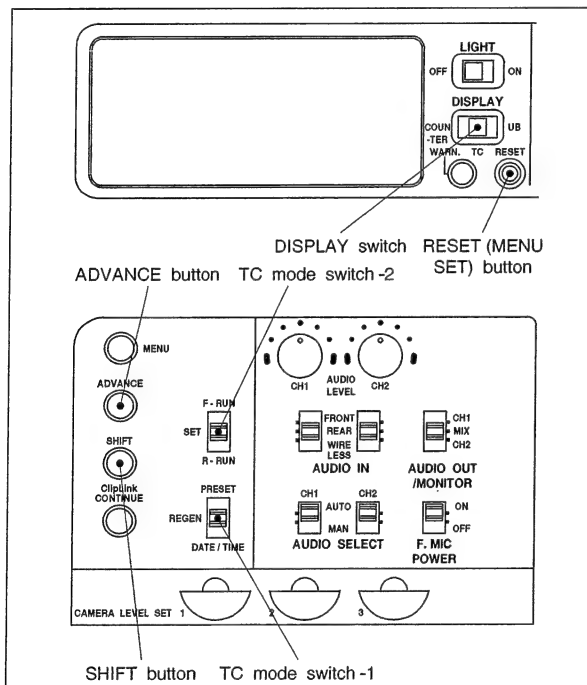
When using both the time code and user bits, set up the user bits first. If you set the time code first, the internal time code generator will remain stopped while you set the user bits, which will set the time value off from the original setting.

### Reference

Refer to "5.8 Setting Time Code Value" for how to set the time code value.

### Notice

Setting the user bit value may be disallowed in some cases at ClipLink shooting. Refer to "5.10 Recording Using ClipLink Function" for details on the ClipLink Shooting.



1. Set the DISPLAY switch to "UB".  
The user bits indication appears.
2. Set the TC mode switch -1 to "PRESET".
3. Set the TC mode switch -2 to "SET".  
This causes the leftmost digit in the user bits indication to start blinking.
4. Set the user bits.
  - Press the SHIFT button to select a digit. Each time you press the SHIFT button, the next digit to the right starts blinking.
  - Press the ADVANCE button to change a value. Each time you press the ADVANCE button, the displayed value increases to F and returns to 0.
  - Press the RESET (MENU SET) button to reset the user

bit value. The display returns to "00 00 00 00".

5. Use the TC mode switch -2 to set the desired running mode.

- **F-RUN** : Time code value advances freely regardless of the VCR current operation mode.
- **R-RUN** : Time code value advances only during recording.

If you select "F-RUN", the time code starts advancing immediately.

### Notice

Hexadecimal digits A to F are displayed as follows.

Hexadecimal Digit	A	B	C	D	E	F
Display	<i>A</i>	<i>b</i>	<i>C</i>	<i>d</i>	<i>E</i>	<i>F</i>

## 5.8 Setting Time Code Value

This section describes the steps for setting time code recording methods for particular shooting conditions and setting initial values.

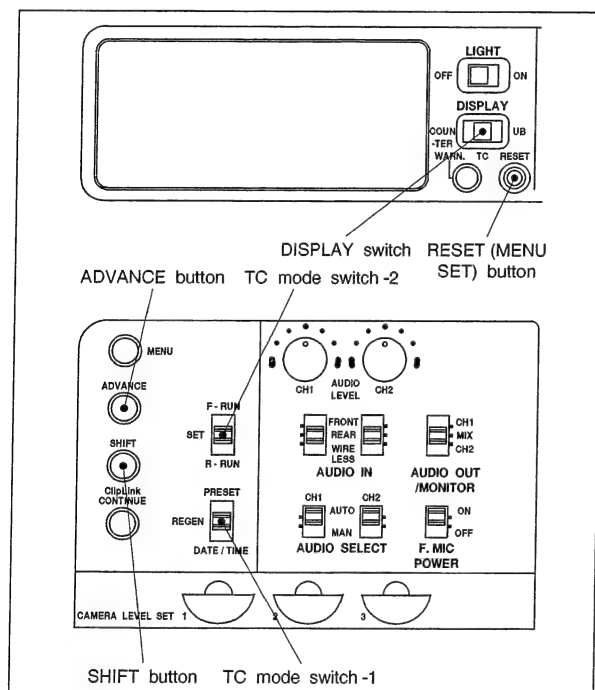
When using both the time code and user bits, set up the user bits first. If you set the time code first, the internal time code generator will remain stopped while you set the user bits, which will set the time value off from the original setting.

### Reference

Refer to "5.7 Setting User Bit Value" for how to set the user bit value.

### Notice

Setting the time code value may be disallowed in some cases at ClipLink shooting. Refer to "5.10 Recording Using ClipLink Function" for details on the ClipLink Shooting.



1. Set the DISPLAY switch to "TC".  
The time code indication appears.
2. Set the TC mode switch -1 to "PRESET".
3. Set the TC mode switch -2 to "SET".  
This causes the leftmost digit in the time code display to start blinking.
4. Set the time code initial value.
  - Press the SHIFT button to select a digit. Each time you press the SHIFT button, the next digit to the right starts blinking.
  - Press the ADVANCE button to change a value. Each time you press the ADVANCE button, the displayed value increases.
  - Press the RESET (MENU SET) button to reset the time

code value. The display returns to "00:00:00:00".

The time code value can be set anywhere in the range of "00:00:00:00" to "23:59:59:29" (for PAL : "23:59:59:24").

### 5. < NTSC only >

Use the VTR menu 204 to select the frame mode.

To adjust the discrepancy between time code value and real time, select the drop-frame mode. Need not to adjust the discrepancy between time code value and real time, select the non-drop-frame mode.

### Reference

Refer to "[ Drop-frame Mode ]" for details on the drop-frame/non-drop-frame mode.

Refer to "5.11 VTR Menu" for details on the VTR Menu.

6. Use the TC mode switch -2 to set the desired running mode.

- **F-RUN** : Time code value advances freely regardless of the VCR current operation mode.
- **R-RUN** : Time code value advances only during recording.

If you select "F-RUN", the time code starts advancing immediately.

### [ Drop-frame Mode (NTSC only) ]

In the NTSC standard, the time code value is based on 30 frames per second, but the exact video frame frequency is in fact 29.97 frames per second. Therefore, after long recording, the discrepancy between time code value and real time occurs, or 18 frames per 10 minutes.

Drop-frame mode corrects for this by skipping two frame counts at the beginning of every minute which is not a multiple of ten.

Example : When the minute value is changing from 11 to 12.

00:05:11:29



00:05:12:02

00:05:12:00 and 00:05:12:01 are dropped.

In non-drop-frame mode, however, no frame counts are omitted, and there is a gradual deviation of the time code from real time.

### [ Making Time Code Continuous at Tag Recording ]

Set the TC mode switch -2 to "R-RUN" and start tag recording.

### Reference

Refer to "5.4 Tag Recording" for how to operate the tag recording.

Perform the following steps to make the time code continuous when the recording has been interrupted or when the cassette tape has been removed from this product between shooting.

1. Set the TC mode switch -1 to "REGEN".  
Time code advance is automatically set to "R-RUN" even if the TC mode switch -2 has been set to "F-RUN".
2. Set the VCR to recording pause state at the position where tag recording is to be performed.  
When the VCR is at the recording pause state, the recorded time code is read from the tape and the internal time code generator synchronizes with it.

**Reference**

Refer to "5.4 Tag Recording" for how to perform tag recording at the desired position.

3. Press the VTR START button to restart tag recording.

**[ Recording Date and Time as Time Code ]**

Set the TC mode switch -1 to "DATE/TIME".

Data of calendar (user bits) and clock (time code) set by the VTR menu 101 are recorded as the time data.

Once you set this switch to "DATE/TIME", it is not possible to retrieve the previous value (user bits and time code) in the time code generator.

**Reference**

Refer to "5.11 VTR Menu" for how to set date and time.

**5.9 Synchronization with External Time Code Signals**

To edit and compile images that were shot by multiple cameras, it is necessary to synchronize the video and time code of the various cameras (in genlock).

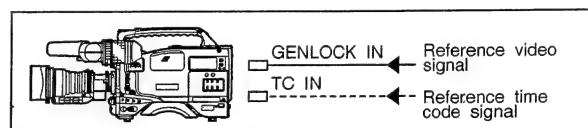
**Notice**

Synchronization with external time code signals (genlock) may be disallowed in some cases at ClipLink shooting. Refer to "5.10 Recording Using ClipLink Function" for the details.

**[ Connection for Genlock ]**

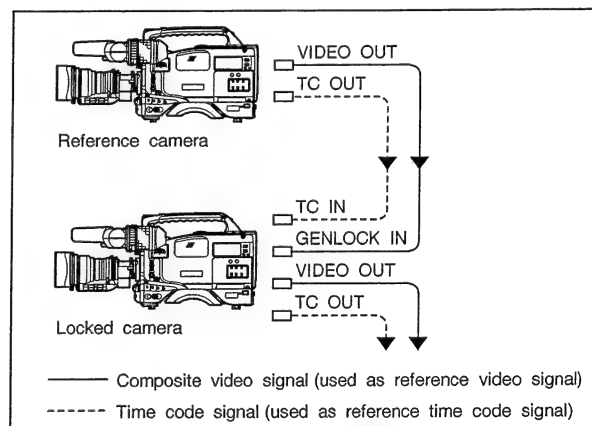
To make time code locked externally, connect the reference video and time code signals to this product as shown below.

- **Locking the video and time code signals to an external reference signal**



- **Locking the video and time code signals to another camera's video and time code signals**

Using one camera as reference, lock the other cameras' video and time code signals to its video and time code signals. If the reference camera is genlocked to an external reference signal, any other connected cameras are genlocked to the same reference signal.

**[ Locking Internal Time Code Generator to Reference Time Code ]**

Perform the following steps to synchronize the internal time code generator to an external time code.

1. Set the TC mode switch -1 to "PRESET".
2. Set the TC mode switch -2 to "F-RUN".

3. Connect a reference time code and video signal to this product.

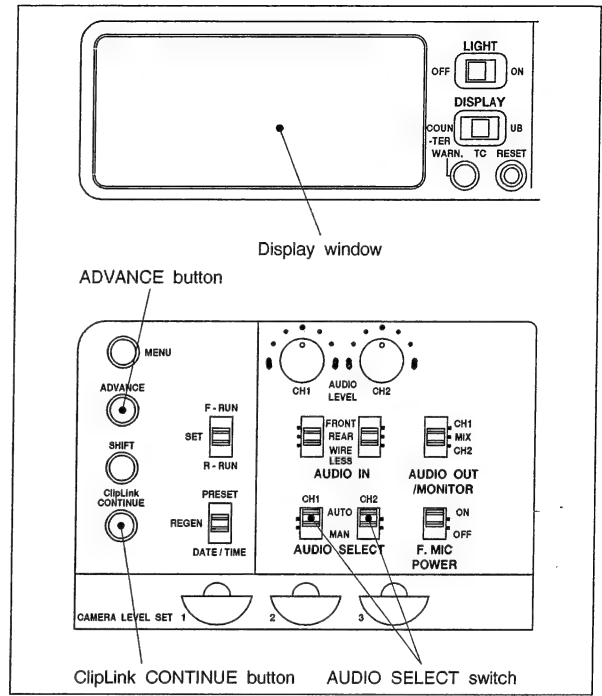
"EXT-LK" will be displayed in the display window. The internal time code generator will maintain its externally synchronized state even after you disconnect the reference time code signal. The precision of this synchronization (phase alignment) of time codes depends on the precision of the camera's sync signal generator.

#### Notice

- After setting up external synchronization, allow a few seconds for the camera's sync signal generator to stabilize before recording.
- Only the time code can be externally synchronized. User bits cannot be externally synchronized.
- If you switch the POWER switch while the time code generator is working with "F-RUN", synchronization precision will be reduced.

## 5.10 Recording Using ClipLink Function

The ClipLink function is intended to be used at various stages from recording to editing. When you record using this function, the time code, scene number, and other data are automatically recorded.



1. Set the POWER switch on the camera right side to "ON".
2. Press the EJECT button to open the cassette holder, and insert the cassette.
3. Check the following points.
  - Check the ClipLink function is on. You can check it in the VTR menu 211.
  - Check whether or not the cassette includes cassette memory.

This product supports cassettes with up to 16 Kbits of cassette memory. The cassette memory indication appears in the display window when the loaded cassette includes cassette memory. The ClipLink function cannot be used unless the cassette memory indication appears in the display window.

- Make sure that the lithium battery has been correctly installed and is not used up.

The lithium backup battery warning appears in the display window if the lithium battery has not been installed or is used up.

The CLIP remainder appears in the display window.

**Notice**

- If you use a cassette that contains data recorded via a different VCR, when you enter a cassette name/number in the cassette memory, you may lose any data that was previously written to the cassette memory. Also, if you use a cassette that contains data recorded in ClipLink mode on this product for recording on a different VCR, you may lose any data that was previously written to the cassette memory.
- When you turn on the power or insert a cassette, black squares blink in the place of the CLIP remainder indication in the display window (during this, the cassette memory data is being checked). Start recording after the blinking ends, or the ClipLink function will be disabled.
- When the CL indication appears in the display window, it means that data has already been recorded into the cassette memory. If you record under this condition whether the ClipLink function is available or not, the existing cassette memory data will be overwritten. To avoid this, insert a new cassette.

When you append cassette memory data, refer to "[Resuming Recording in ClipLink Mode]" below.

If the CL indication is blinking, it means abnormality of the cassette memory data. In this case, it is impossible to continue recording from that data in ClipLink mode.

**Notice**

The number of recordable clips varies with cassette memory capacity. Up to 45 clips (index pictures) can be recorded in a 4-Kbit cassette memory and up to 198 clips (index pictures) can be recorded in a 16-Kbit cassette memory.

4. Set the AUDIO SELECT switches to "AUTO" or "MANUAL".

5. Set up and adjust the camera according to your shooting objectives, then press the VTR START button.

Recording begins when the TALLY lamp stays lit after blinking for a moment.

This product enters ClipLink continue mode (in which tag recording is possible with the ClipLink function) and the CONT indication appears in the display window.

At this time, the time code (HH:MM:SS format) at the recording start (Rec IN) point is recorded into the internal memory.

**Notice**

When the CONT indication appears, regardless of the setting of the TC mode switch -1, the time code generator automatically enters REGEN mode. Consequently, you cannot freely specify a time code nor can you use the external synchronization (genlock) function.

6. To stop recording, press the VTR START button.

This sets recording pause mode.

The time codes (HH:MM:SS) for the current clip (contents between the Rec IN and Rec OUT points) are recorded along with the scene number (as scene 001) in the cassette memory.

**Notice**

While data is being recorded in the cassette memory, turning off the power or opening the cassette holder is disallowed. If you set the POWER switch to "OFF" or press the EJECT button, black squares blink in the place of the CLIP remainder indication in the display window. When the data has been recorded, the power is turned off or the cassette is ejected.

7. To continuously record the next scene, repeat steps 5 and 6.

The scene number will automatically increase from the previous number.

**Reference**

When you have interrupted tag recording, refer to "[Resuming Recording in ClipLink Mode]".

**Notice**

- During recording pause, pressing the STOP/PLAY/FF/REW buttons or ejecting the cassette will interrupt the ClipLink shooting. With this state, it is impossible to start tag recording with the ClipLink function (The ClipLink continue mode is canceled and the CONT indication in the display window disappears). To perform tag recording at the recording stop position, press the ClipLink CONTINUE button before resuming recording. If you do resume recording without pressing this button first, the previous recorded data will be overwritten or otherwise invalidated.
- Each time you press the STOP button, the number of remaining index pictures decreases by one. If you resume recording with the same VCR, the number of remaining index pictures automatically increases by one.
- Do not unplug the power supply connector (connected to a battery pack or AC outlet) while the POWER switch is still set to "ON", as this may cause the ClipLink function to operate abnormally. Be sure to set the POWER switch to "OFF" before disconnecting the power supply.

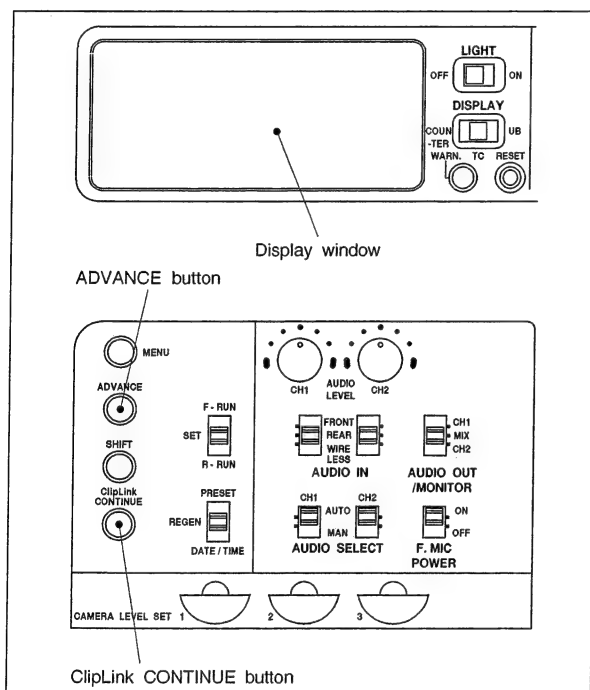
**[ Resuming Recording in ClipLink Mode ]**

During recording pause in ClipLink mode, pressing the STOP/PLAY/FF/REW buttons or ejecting the cassette will interrupt the ClipLink shooting. With this state, it is impossible to start tag recording with the ClipLink function (The ClipLink continue mode is canceled and the CONT indication in the display window disappears). If you resume recording on the same cassette, the previously recorded data will be overwritten.

You can avoid this and continue recording in ClipLink mode from the previous recording stop point by performing the following steps.

**Notice**

If you stop recording during the first ten seconds of recording, you may not be able to use these steps to continue recording in ClipLink mode.



1. Set the POWER switch on the camera right side to "ON".
2. Insert a cassette if one is not loaded.  
The CL and cassette memory indications will appear in the display window.

**Notice**

If the CL indication is blinking, it means abnormality of the cassette memory data. In this case, it is impossible to continue recording from that data in ClipLink mode.

3. Check that the CLIP remainder appears in the display window.  
If these indications do not appear in the display window, access the VTR menu 211 and set ClipLink function to "on".

4. Press the ClipLink CONTINUE button.

The TAPE remainder indication in the display window blinks as this product automatically searches the recording stop point. When it finds the recording stop point, it stops and enters recording pause mode.

To find the recording stop point efficiently, you rewind or fast forward the tape to the position between the previous recording's start point and stop point before pressing the ClipLink CONTINUE button. Then, the recording stop point can more efficiently be found via an automatic search function.

**Notice**

Do not turn on or off the camera power while this product is searching for the recording stop point, as it might disable the search function. If, for this or another reason, the recording stop point cannot be found, the CONT indicator blinks in the display window.

5. Check that the CONT indicator appears in the display window.
6. Press the VTR START button.  
This starts recording.
7. When the recording is finished, set recording pause mode by pressing the VTR START button.  
The time codes (HH:MM:SS) for the current clip (contents between the Rec IN and Rec OUT points) are recorded along with the scene number (serial number of scene during which recording was stopped) in the cassette memory.
8. Repeat steps 6 and 7 to start recording the next scene.

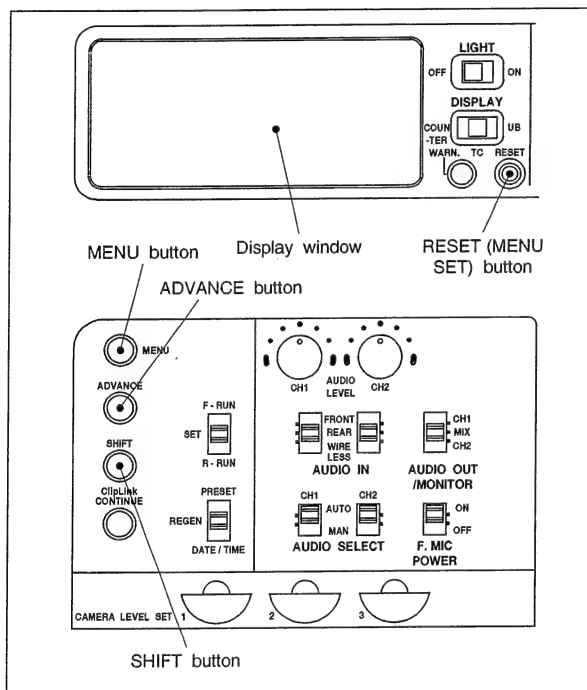


## 5.11 VTR Menu

You can use the VTR menu to make the following settings.

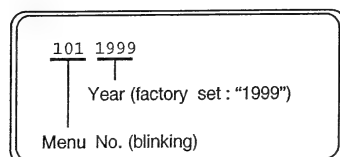
Menu Number	Selection Mode	Initial Value	Operation
101	---	---	Settings of real time clock and calendar
201	---	---	Cumulative hour counts: Head drum operating hours, Tape transport hours, Operating (power-on) hours
204	dF, ndF	dF	Selection of frame mode for time code (NTSC only)
206	LI, Antn, Ni	Ni	Selection of battery capacity indication
207	08, 01, 03, 05	08	Setting of standby-on period
210	oFF, on	oFF	Use of auto-check function
211	on, oFF	on	Selection of ClipLink function
212	48, 32	48	Selection of audio recording mode
213	-20 (PAL : -18), -12	-20 (PAL : -18)	Selection of audio reference level
214	oFF, on	oFF	Selection of fade-in/fade-out for audio recording start and stop points
220	oFF, on	oFF	Use of setup-add

### [ Basic Operation ]



1. Press the MENU button.

"DIAG" appears in the display window and the time data display in the display window switches to the menu display.



2. Press the ADVANCE button repeatedly until the desired

menu appears.

3. Press the SHIFT button.

This shows the current settings for the menu selected by step 2. The setting can be changed for the digit that is blinking.

To exit from changing settings, press the MENU button to close the menu.

4. Change the settings.

- Press the SHIFT button to select digit to be changed.
- Press the ADVANCE button to change the value.

5. Press the RESET (MENU SET) button.

This registers the new setting and the menu number display blinks.

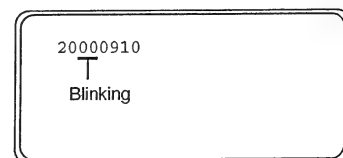
6. Press the MENU button.

The display window returns to the display shown before the VTR menu.

### a) Menu 101

#### [ Setting Real Time Clock and Calendar ]

1. Display the VTR menu 101 and press the SHIFT button. The current calendar setting appears in the setting mode format (yyyymmdd). Example : September 10, 2000



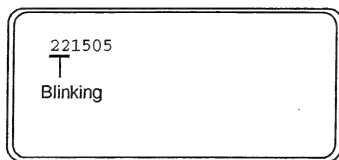
2. Use the SHIFT and ADVANCE buttons to set the desired date.

If there are no more new settings to be made, go directly to step 5.

3. Press the SHIFT button while the data display is blinking  
(Example: 20000910).

The current time (real time clock) setting is displayed.

Example : 10:15.05 PM



4. Use the SHIFT and ADVANCE buttons to set the desired time.
5. Press the RESET (MENU SET) button.  
This starts the clock advance operation.
6. Press the MENU button.  
The display window returns to the display shown before the VTR menu.

#### Reference

Refer to "5.6 Switching Time Value Indications" for how to display the date and time.

### b) Menu 201

#### [ Checking Total Operating (Power-On) Hours ]

1. Display the VTR menu 201 and press the SHIFT button.  
Pressing the SHIFT button cycles through the following display items.
  - Head drum operating hours : example; A 0492Hr
  - Tape transport hours : example; b 0720Hr
  - Total operating hours : example; C 0835Hr
  - Menu number : example; 201 0492
2. Check the indication, then press the RESET (MENU SET) button, followed by the MENU button.  
The display window returns to the display shown before the VTR menu.

### c) Menu 204

#### [ Selecting Frame Mode (DF/NDF) for Time Code ]

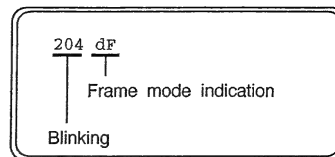
Select frame modes when setting the time code.

- **Drop-frame mode** (factory setting)  
: When adjusting the discrepancy between time code value and real time
- **Non-drop-frame mode**  
: When you need not adjust the discrepancy between time code value and real time

#### Reference

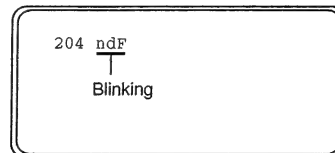
Refer to "5.8 Setting Time Code Value" for how to set time code.

1. Display the VTR menu 204.  
The menu number and the current frame mode setting are shown. Example : dF (drop-frame mode)



If the setting does not need to be changed, press the MENU button to close the menu.

2. Press the SHIFT button to make the frame mode start blinking, and then press the ADVANCE button.  
This switches the frame mode display as shown below.  
Example : ndF (non-drop-frame mode)



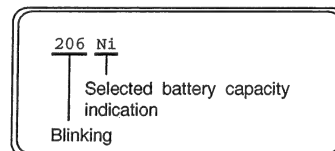
3. Press the RESET (MENU SET) button and then the MENU button.  
The setting is registered and the display window returns to the display shown before the VTR menu.

### d) Menu 206

#### [ Selecting Battery Remainder Indication ]

This selects the indication type of battery remainder.

1. Display the VTR menu 206.  
The selected menu number is displayed along with the type of the currently selected battery. Example : Ni  
(Indication for the NP-1B/BP-90A)



If the setting does not need to be changed, press the MENU button to close the menu.

2. Press the SHIFT button until the desired battery type is displayed, and then press the ADVANCE button.  
Pressing the ADVANCE button cycles through the following indications. LI -> Antn -> Ni
  - **LI** : Indication for BP-L60/L90 batteries
  - **Antn** : Indication for ANTON/BAUER intelligent batteries
  - **Ni** : Indication for NP-1B/BP-90A batteries

#### Notice

To use an ANTON/BAUER intelligent battery, the special battery mount is required. For details, refer to [ Using Intelligent Battery Made by ANTON/BAUER ] of "3.6 Connecting Power Supply".

When using a lithium ion battery E-50 made by IDX Company Ltd. , set to "Antn" so that the battery remainder is indicated by percentage on the viewfinder screen.

3. Select the desired battery type and press the RESET (MENU SET) button and then the MENU button.  
The setting is registered and the display window returns to the display shown before the VTR menu.

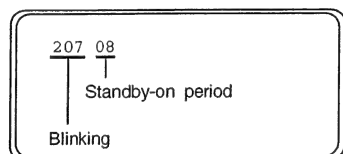
### e) Menu 207

#### [ Setting Standby-On Period ]

At recording pause state, the VCR waits for a certain standby-on period and then automatically switches to standby-off mode. This standby-on period can be set in advance.

1. Display the VTR menu 207.

The selected menu number is displayed along with the current standby-on period setting (in minutes). Example : 8 minutes



If the setting does not need to be changed, press the MENU button to close the menu.

2. Press the SHIFT button until the standby-on period starts blinking, and then press the ADVANCE button.  
Each press of the ADVANCE button changes the setting as follows. 08 (factory setting) -> 01 -> 03 -> 05
3. Press the RESET (MENU SET) button and then the MENU button.  
The setting is registered and the display window returns to the display shown before the VTR menu.

### f) Menu 210

#### [ Using Auto-Check Function ]

On the VCR, the internal check can be automatically performed by the auto-check function. Meanwhile, a test recording and playback are also performed for about 1 minute.

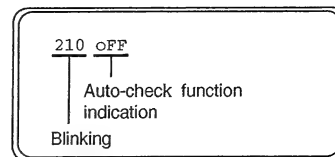
Before shooting, it is desirable to perform auto-check and make sure for problems in VCR's internal operations and the VCR section through the result of the internal check displayed in the display window and the video and audio recording qualities.

#### • Preparations for testing

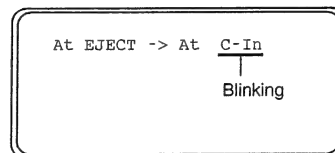
- Connect a monitor to the VIDEO OUT connector.
- Connect an earphone to the EARPHONE jack.
- Prepare a cassette for test recording/playback.

#### • To perform auto-check

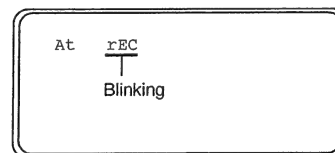
1. Display the VTR menu 210.



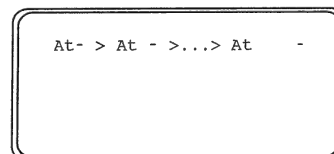
2. Press the SHIFT button to make the auto-check function indication (OFF) start blinking, and then press the ADVANCE button to change the indication to "on".  
To cancel the auto-check function, press the MENU button to close the menu.
3. Press the RESET (MENU SET) button.  
This changes the display and opens the cassette holder. If there is a cassette in the holder, it is ejected (except during recording).



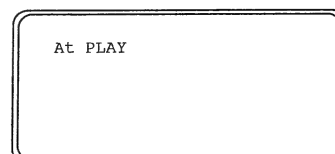
4. Insert a cassette and close the cassette holder.  
The display changes to the following and the tape is loaded.



5. Use the VTR operation buttons to change the tape position for test recording if necessary, or advance to step 6.
6. Press the VTR START button.  
Test recording starts. The display changes as shown below during recording. (The hyphen following "At" moves to right.)



After about 1 minute, the tape is rewound to the recording start position and playback starts. The following is displayed during playback.



7. Check the recording quality of the playback video on the viewfinder or monitor screen. Moreover, check the recording quality of the playback audio from the earphone or headphones.

When playback ends, the internal check result is displayed and the VCR enters recording pause mode.

#### Notice

If the recording quality is poor, there may be some kind of problem whether or not it is detected by the internal check. Refer to "7. Troubleshooting" and repeat the test. If the recording quality remains poor, consult with your sales representative.

8. After confirming the result, press the MENU button.  
The display window returns to the display shown before the VTR menu.

The result of the internal check is displayed in code as shown below. When a problem is indicated, follow the instructions to check this product and cassette. If no error can be found, consult with your sales representative. Also, be sure to check the quality of the playback video and audio.

- **At good** : VCR's internal operations are normal. If the video and audio recording qualities are normal, the unit is ready for use.
- **At ng-01** : There may be a problem in the VCR or the cassette. Consult with your sales representative.
- **At ng-02** : There may be a problem in VCR's internal operations or data loaded from the tape. Clean the video heads using a cleaning cassette (refer to "5.12 Cleaning Video Heads") and repeat the auto-check. If the result is the same, consult with your sales representative.
- **At ng-03** : There may be a problem in the VCR/camera connection. Repeat the auto-check. If the result is the same, consult with your sales representative.
- **At ng-04** : Check whether the REC/SAVE switch on the cassette is set to "SAVE". If so, repeat the auto-check with setting the switch to "REC" or using another cassette whose REC/SAVE switch is set to "REC". If the result is the same, consult with your sales representative.
- **At ng-05** : Check whether a cassette is inserted. If not, insert a cassette and repeat the auto-check. If the result is the same, consult with your sales representative.
- **o-HAUL** : If the video and audio recording qualities are normal, the unit is ready for use. However, the unit requires service. It is desirable to consult with your sales representative.
- **At Abort** : The test recording or playback and internal check have aborted (when a VTR operation button was pressed during recording or

playback or when the tape ended). To resume the auto-check, press the MENU button to close the menu and perform the previously described procedure.

## g) Menu 211

### [ Selecting ClipLink Function ]

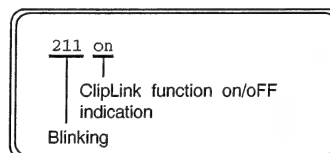
This setting must be made when the ClipLink function is not used.

#### Reference

Refer to "5.10 Recording Using ClipLink Function" for details on the ClipLink Function.

1. Display the VTR menu 211.

The ClipLink function is set to "on" at our factory.



If the setting does not need to be changed, press the MENU button to close the menu.

2. Press the SHIFT button to make the ClipLink function on/off indication start blinking. Then, press the ADVANCE button to change the indication to "oFF".
3. Press the RESET (MENU SET) button and then the MENU button.  
The setting is registered and the display window returns to the display shown before the VTR menu.

## h) Menu 212

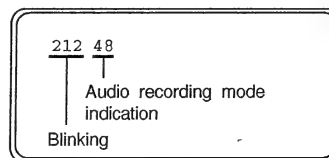
### [ Selecting Audio Recording Mode ]

The audio recording mode can be set to either of the following modes.

- **48kHz mode** : Two-channel recording mode with 48-kHz sampling frequency (factory setting)
- **32kHz mode** : Four-channel recording mode with 32-kHz sampling frequency (for channels 1 and 2)

1. Display the VTR menu 212.

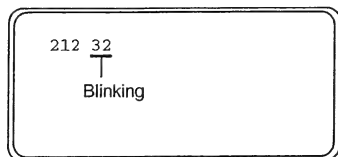
The menu number and current audio recording mode are displayed. Example : 48 (two-channel recording mode with 48-kHz sampling frequency)



If the setting does not need to be changed, press the MENU button to close the menu.

2. Press the SHIFT button to make the audio recording mode indication start blinking, and then press the ADVANCE button.

This switches the mode setting to the other audio recording mode. Example : 32 (four-channel recording mode with 32-kHz sampling frequency)



3. Press the RESET (MENU SET) button and then the MENU button.

The setting is registered and the display window returns to the display shown before the VTR menu.

### i) Menu 213

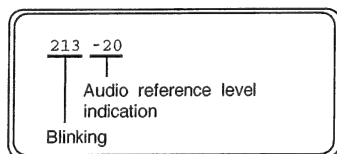
#### [ Selecting Audio Reference Level ]

The audio reference level can be set to either of the followings.

- **-20dB** : Audio reference level for professional use (factory setting) (for PAL : -18dB)
- **-12dB** : Audio reference level commonly used for consumer DV (The maximum level is 0 dB.)

1. Display the VTR menu 213.

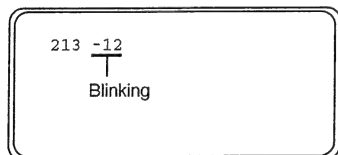
The menu number and current audio reference level are displayed. Example : -20 dB



If the setting does not need to be changed, press the MENU button to close the menu.

2. Press the SHIFT button to make the audio reference level display start blinking, and then press the ADVANCE button.

This switches the setting to the other audio reference level. Example : -12 dB



3. Press the RESET (MENU SET) button and then the MENU button.

The setting is registered and the display window returns to the display shown before the VTR menu.

#### Notice

When using this product in a editing system containing both consumer DV and professional equipment, setting

the audio reference level to "-12" is recommended. Changing the audio reference level setting from "-20" (for PAL : "-18") to "-12" increases the audio recording level by 8 dB (for PAL : 6 dB) whether the AUDIO SELECT switches are set to "AUTO" or "MANUAL".

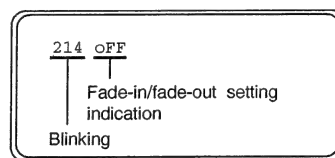
### j) Menu 214

#### [ Setting Fade-In/Fade-Out for Audio Recording Start and Stop Points ]

You can reduce noise at tag recording points (if necessary) by setting the fade-in/fade-out to "on". The fade-in/fade-out transition time is within one frame (NTSC : 1/30 seconds, PAL : 1/25 seconds).

1. Display the VTR menu 214.

The fade-in/fade-out is set to "oFF" at our factory.



If the setting does not need to be changed, press the MENU button to close the menu.

2. Press the SHIFT button to make the fade-in/fade-out setting indication start blinking, and then press the ADVANCE button to change the setting to "on".

3. Press the RESET (MENU SET) button and then the MENU button.

The setting is registered and the display window returns to the display shown before the VTR menu.

#### Notice

When the DV OUT connector is connected with an external VCR or the like, regardless of the menu 214 setting, the fade-in/fade-out is set to "OFF" state.

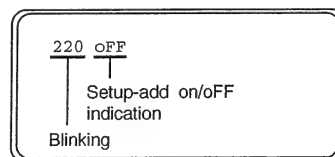
### k) Menu 220

#### [ Using Setup Add (for NTSC Only) ]

Use this menu to add setup to the playback video signals.

1. Display the VTR menu 220.

The setup add is set to "oFF" at our factory.



If the setting does not need to be changed, press the MENU button to close the menu.

2. Press the SHIFT button to make the setup add on/oFF indication start blinking, and then press the ADVANCE button to change the setting to "on".

3. Press the RESET (MENU SET) button and then the MENU button.

The setting is registered and the display window returns to the display shown before the VTR menu.

**Notice**

- When using a camera signal without setup, set both the setup add and setup remove to "off".
- When using a camera signal with setup, set the setup remove to "on".

During recording, the signal of the image being shot contains setup when it is output from the VIDEO OUT connector. During playback, the setup is removed from the output video signal.

To have the setup added during playback, set the setup add to "on".

## 5.12 Cleaning Video Heads

Always use the special-purpose cleaning cassette DVM-12CL (made by Sony) for cleaning the audio and video heads. Follow the instructions with the cleaning cassette carefully, as inappropriate use of the cleaning cassette can damage the heads.

**Notice**

The DVM-12CL Cleaning Cassette can be used only once. When the DVM-12CL is loaded in this product, only STOP, PLAY and EJECT buttons function.

### [ Replacing Video Heads ]

If cleaning the video heads fails to restore picture quality, the heads may be due for replacement.

Keep a check of the hours of head drum operation : with normal use, the heads should need replacing after about 1,500 hours of use.

When the heads need replacement, consult your sales representative.

**Reference**

Check the hours of head drum operation using the VTR menu. Refer to "5.11 VTR Menu" for details.

### 5.13 Warning System

When the VCR is powered on, or if a fault occurs during operation, a warning is given in the following ways :

- By warning indications in the display window.
- By means of the WARNING lamp together with a warning tone from the speaker or earphone.

You can adjust the volume of the warning tone with the ALARM LEVEL control. When this control is turned to the minimum position, there is no sound output at all.

- By the warning indicators in the viewfinder.

#### [ Condensation ]

If you move the camera suddenly from a very cold place to a warm place, or use it in a very humid location, condensation may form on the head drum. If the VCR is operated in this state, the tape may adhere to the drum, and cause a failure or even permanent damage. Take the following steps to prevent this from happening :

- Remove the cassette before moving the unit from a very cold place to a warm place.
- Before inserting a cassette, turn on the power, and check that the HUMID indication is not appearing in the display window. If it is appearing, wait. Do not insert a cassette until the HUMID indication disappears. You can save waiting time if you keep the VCR powered.

Display Window		WARNING Indication	Warning Tones	Viewfinder Indicators		Problem	Machine Action	What to do
Indication	State			REC/TALLY	BATT			
RF	Continuous (a)	4 blinks/sec (a)	4 beeps/sec (a)	4 blinks/sec (c)	---	Video head gaps clogged or problem in recording circuit.	Detects head clogging and issues warning sound. Proper recording may not be obtained.	Clean the heads. If the problem persists, turn off the power and consult with your sales representative.
SERVO	Continuous (a)	4 blinks/sec (a)	4 beeps/sec (a)	4 blinks/sec (c)	---	Servo lock lost.	Continues recording. But proper recording may not be obtained. At recording start, warning lamp may blink temporarily.	Turn off the power and consult with your sales representative.
HUMID	Continuous	Continuous	Continuous	4 blinks/sec (c)	---	Condensation on head drum.	Stops the VCR and accepts only eject.	With power on, wait until the HUMID indication disappears.
SLACK	Continuous	4 blinks/sec	Continuous	4 blinks/sec (c)	---	Tape cannot be wound properly.	Stops operation.	Consult with your sales representative before doing anything. (d)
TAPE	1 blink/sec (a)	1 blink/sec (a)	1 beep/sec (c)	1 blink/sec (c)	---	Close to the end of tape.	Continues operation.	Replace the cassette as soon as possible.
	4 blinks/sec	Continuous	Continuous	---	---	End of tape.	Stops recording, playback and fast forward.	Replace the cassette or rewind.
BATT	1 blink/sec	1 blink/sec	1 beep/sec (b)	1 blink/sec (c)	1 blink/sec	Battery almost exhausted.	Continues operation.	Replace the battery as soon as possible.
	4 blinks/sec	Continuous	Continuous	1 blink/sec (c)	Continuous	Battery exhausted.	Stops operation.	Replace the battery.

(a) During recording or at recording pause.

(b) Except during playback, fast forward, rewind and recording view.

(c) During recording only.

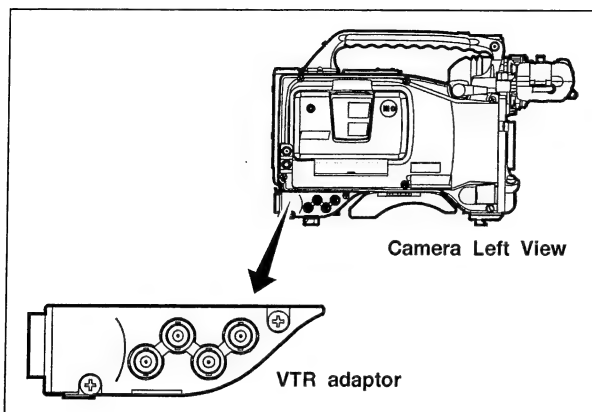
(d) Do not operate this machine with "SLACK" indication displayed or the tape may be damaged.

### 5.14 Using External VCR

This camera is equipped with an interface (26-pin) which enables recording to be performed by an external VCR.

Mounting the VTA-204V adaptor (optional) and connecting the VTR cable (optional) to the camera allows recording to be performed by an external VCR.

Composite video signal and component video signal are output from the 26-pin interface.



#### Reference

Refer to "3.12 Mounting Adaptor" for how to mount.

#### Notice

The VTA-203V adaptor cannot be used.

#### [ Type of External VCR ]

VCRs which have the 14-pin or 26-pin interface.

#### [ Precautions when Connecting External VCR ]

##### • Menu

Make sure that the selection mode of the sub menu "REC PRIORITY" in the MAINTENANCE MENU "EXT VTR REC CONTROL" of the camera section is set to "PARALLEL" or "EXT VTR".

##### • Power Supply

Power cannot be supplied between the camera and the external VCR, so special power supplies should be provided for each power supply.

The BATT indicator and battery voltage/remainder warning indication inside the viewfinder indicate the power supply status only for the internal VCR. On the power supply status for the external VCR, check at the external VCR.

##### • REC Lamp Operation

When the selection mode of the menu is set to "PARALLEL", the camera tally lamps and the upper R TALLY indicator inside the viewfinder indicate the REC status for the internal VCR, and the lower R TALLY indicator indicate the REC status for the external VCR.

When the selection mode is set to "EXT VTR", the camera tally lamps and the upper and lower R TALLY indicators inside the viewfinder indicate the REC status for the external VCR.

##### • Warning Tone

Warning tones related to the external VCR are not output from the camera speaker or EARPHONE jack.

##### • Note on Connection Cable

Signals may not be transmitted properly with some cables. The signal assignments of the 26-pin connector on the VTA-204V adaptor (optional) are shown in [ VTR Connector (optional) ] of "3.15 Connector Pin Function", so connect with an external VCR by referring to it.

##### • Output Level from VTR Adaptor

When the camera is shipped from the factory, the MIC level is set to -60dBu balanced and the component video level is set to betacam level.

The MIC level can be set to -20dBu balanced.

The component video level can be set as follows by the sub menu "COMP LEVEL" in the MAINTENANCE MENU "EXT VTR REC CONTROL" of the camera section.

- MODE1 : Betacam level
- MODE2 : MII level

#### Reference

Refer to [ VTR Connector (optional) ] of "3.15 Connector Pin Function" for how to set the MIC level.



**[ Using Both Internal and External VCRs ]****• Function Setting**

Set the selection mode of the sub menu "REC PRIORITY" in the MAINTENANCE MENU "EXT VTR REC CONTROL" of the camera section to "PARALLEL".

**• Starting Recording**

1. Operate the external VCR and set it to recording paused status.
2. Press the VTR START button on the camera or the VTR button on the lens.

The internal and external VCRs start recording simultaneously. Pressing the button again sets both VCRs to recording paused status.

**Notice**

- Even if one VCR comes to the end of its tape and stops, the other VCR continues recording operation.
- To returning the VCRs to simultaneous recording status, if the internal VCR came to the end of its tape, replace the cassette and press the VTR START button on the camera or the VTR button on the lens. The external VCR continues recording operation during this time.

If the external VCR came to the end of its tape, replace the cassette and operate the external VCR to restart recording. The internal VCR continues recording operation during this time, but if the VTR START button or the VTR button is pressed, the internal VCR is set to recording paused status.

**• Tape Running Mode**

Pressing the STOP, REW or FF button on the camera sets the internal VCR to stop, rewind or fast forward mode, respectively. However, the external VCR is set to recording paused status in all cases.

**• Playback**

Pressing the PLAY button on the camera allows black-and-white playback images from the internal VCR tape to be viewed on the viewfinder. To monitor playback images from the external VCR tape on the viewfinder screen, play back the external VCR, set the selection mode of the sub menu "RET SOURCE" in the MAINTENANCE MENU "OTHERS" to "EXT VIDEO", and press the RET button.

**[ Using Only External VCR ]****• Function Setting**

Set the selection mode of the sub menu "REC PRIORITY" in the MAINTENANCE MENU "EXT VTR REC CONTROL" of the camera section to "EXT VTR".

Doing so enables only the external VCR to be controlled by the VTR START button on the camera or the VTR button on the lens.

**• Starting Recording**

Operate the external VCR to set it to recording paused status and press the VTR START button on the camera or the VTR button on the lens.

The external VCR starts recording. Pressing the button again sets the VCR to recording paused status.

## 6. INSPECTIONS PRIOR TO SHOOTING

### 6.1 Inspecting Camera Section

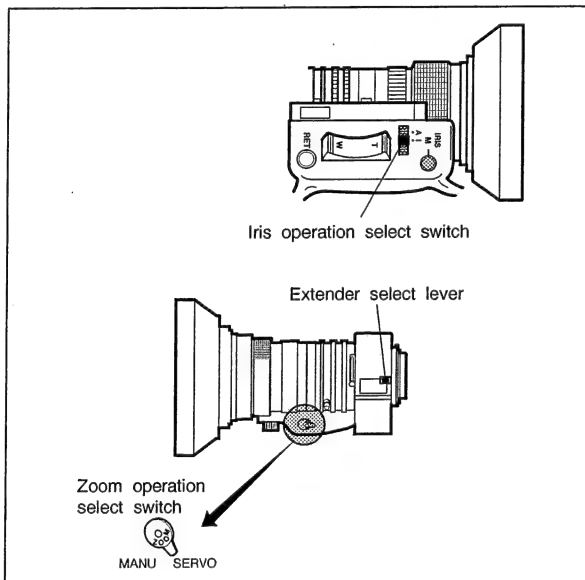
Before shooting, carry out the following inspections to check that the camera is operating properly. It is recommended that you use a color monitor to check the images during the inspection.

#### [ Checking Switch Positions ]

Before setting the POWER switch to "ON", check whether the following switches, knobs, etc. are set to the specified positions.

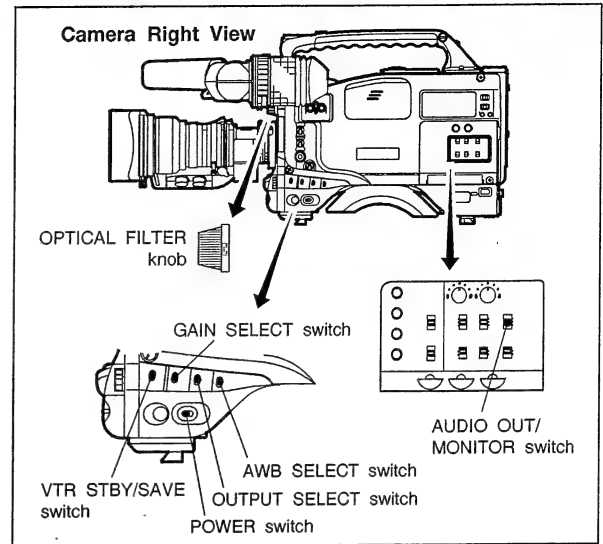
#### Lens

- Iris operation select switch : "A"
- Zoom operation select switch : "SERVO"
- Extender select lever : "×1"



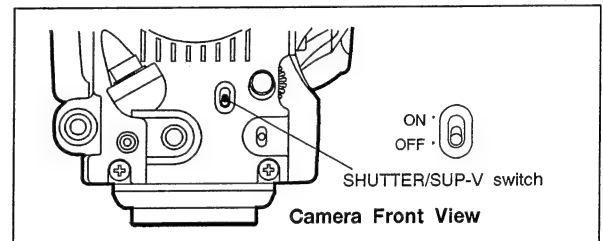
#### Right Side of Camera

- OPTICAL FILTER knob : "A"
- GAIN SELECT switch : "0"
- AWB SELECT switch : "A" or "B"
- OUTPUT SELECT switch : "BARS"
- VTR STBY/SAVE switch : "STBY"
- AUDIO OUT/MONITOR switch : "MIX"
- POWER switch : "OFF"



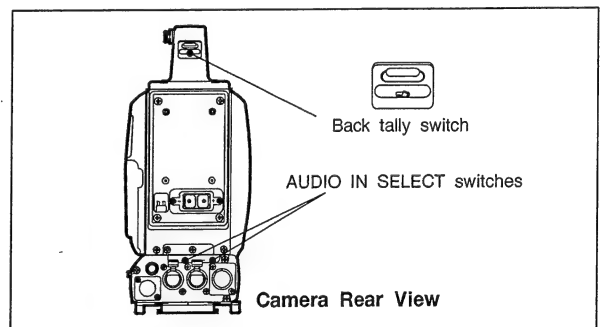
#### Front View of Camera

- SHUTTER/SUP-V switch : "OFF"



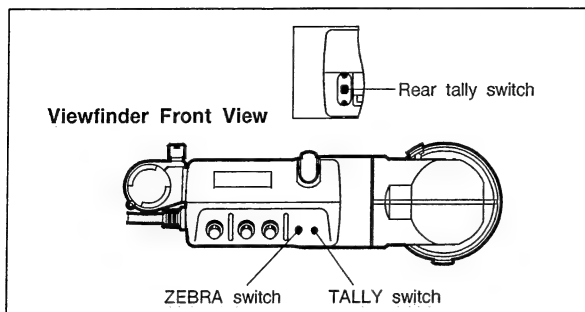
#### Rear View of Camera

- Back tally switch : "ON"
- AUDIO IN SELECT switches : "MIC"



**Viewfinder**

- TALLY switch : "ON"
- ZEBRA switch : "ON"
- Rear tally switch : "ON"

**[ Turn on Power ]**

1. Before turning on the power, load the charged battery pack into the battery case attached to the camera rear side.  
When using the AC pack, first connect it and then set the AC pack's power switch to "ON".
2. Set the POWER switch on the camera to "ON".
3. Check that color bar signals are being output properly on the viewfinder (monitor) screen.

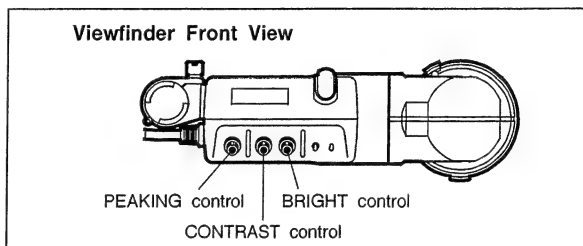
**6.2 Inspecting Viewfinder**

1. Adjust the viewfinder position.

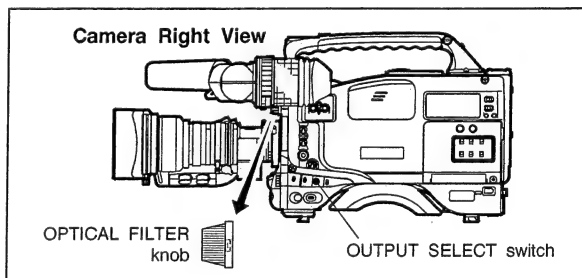
**Reference**

Refer to "4.11 Operating Viewfinder" for details on the viewfinder position adjustment.

2. Check that color bars have appeared on the viewfinder screen, and then adjust the BRIGHT, CONTRAST and PEAKING controls in such a way that the color bars appear most clearly.



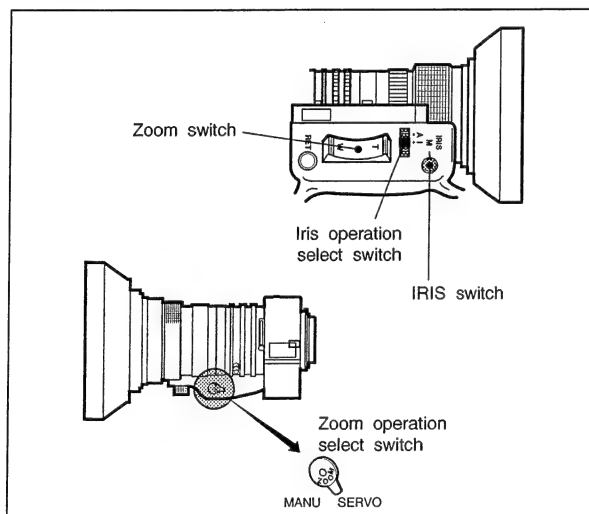
3. Set the OUTPUT SELECT switch to "CAM", and switch the OPTICAL FILTER knob.  
In this time, check that the filter character display corresponding to the knob position lights up on the viewfinder screen.



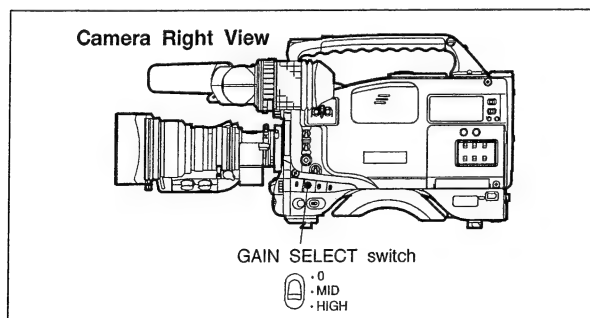
4. Point the camera at a chart or other subject, turn the focus ring to bring the subject into focus and check that the proper image appears on the viewfinder screen.

### 6.3 Inspecting Automatic Aperture Control and Motorized Zoom Functions

1. Set the zoom operation select switch on the lens to the "SERVO" position.
2. Press the zoom switch on the lens to the "W" or "T" position and check whether you get wide-angle or telephoto image.
3. Set the iris operation select switch on the lens to "A" (Auto), point the camera at a subject with a different brightness and check that the automatic aperture control mechanism is working.
4. Set the iris operation select switch to "M" (Manual), point the camera at a subject with a different brightness and check that the automatic aperture control mechanism is working while the IRIS switch is held down.
5. Set the iris operation select switch back to "A" and check that the lens aperture changes with a subject having the same brightness when the GAIN SELECT switch is set to "MID" and then to "HIGH".

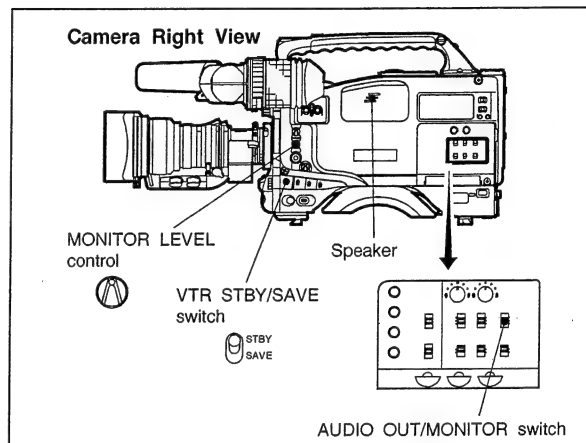


6. Set the GAIN SELECT switch to "0".



### 6.4 Inspecting Earphone and Speaker

1. Set the VTR SAVE/STBY switch to "STBY".
2. Set the AUDIO OUT/MONITOR switch to "MIX".
3. Turn the MONITOR LEVEL control and check that the volume of the speaker changes.
4. Connect an earphone to the EARPHONE jack and check that the sound from the speaker is cut off and that the sound from the earphone can be heard.
5. Turn the MONITOR LEVEL control again and check that the volume of the earphone changes.



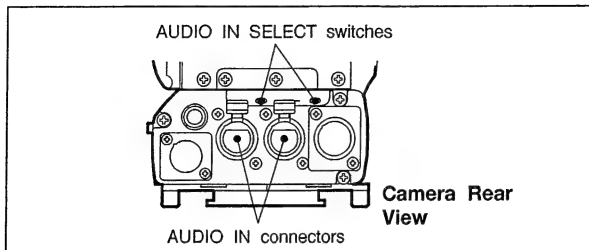
#### ⚠ CAUTION

##### Concerning Volume Levels

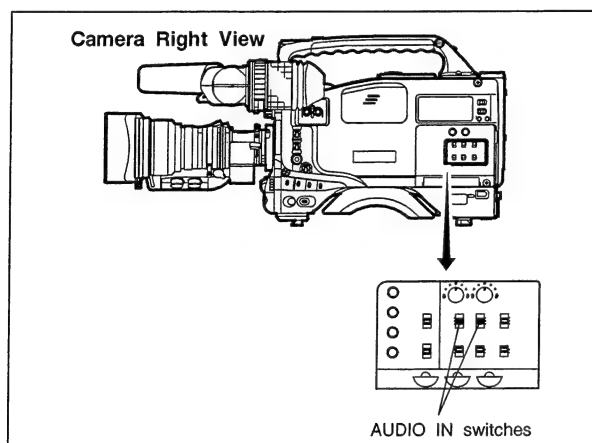
Start with the sound turned down and then increase it gradually to the appropriate level. Listening at a high volume level can damage your eardrums.

## 6.5 Inspections when Using External Microphone

1. Connect an external microphone to the AUDIO IN connector (CH-1 or CH-2).
2. When the +48V phantom power supply is required, set the AUDIO IN SELECT switch to "+48".



3. Set the AUDIO IN switch in the VTR control panel to "REAR".



4. Point the microphone toward a sound source.
5. Check that the level meter display lights in accordance with the volume level of the sound source.

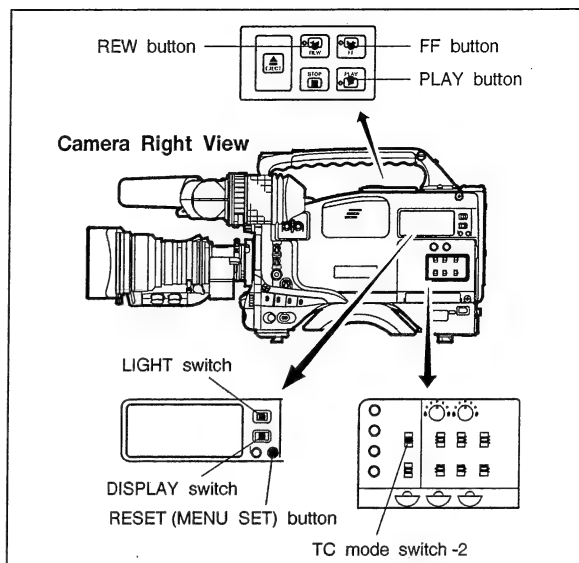
### ⚠ CAUTION

#### Concerning Volume Levels

Start with the sound turned down and then increase it gradually to the appropriate level. Listening at a high volume level can damage your eardrums.

## 6.6 Inspecting VCR Section

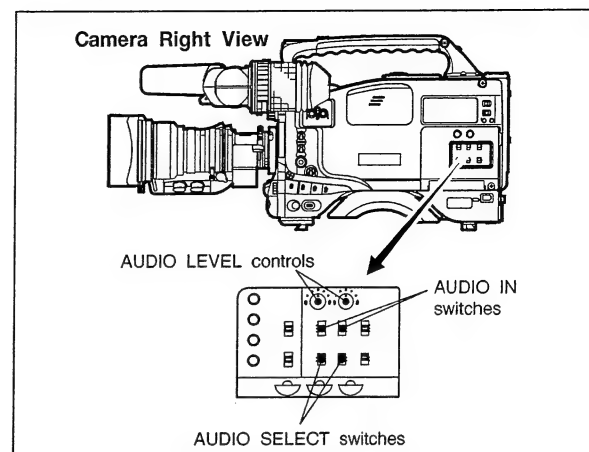
Inspections from "6.4 Inspecting Earphone and Speaker" to "6.6 Inspecting VCR Section" must be made continuously.



1. Set the TC mode switch -2 to "R-RUN".
2. Set the DISPLAY switch to "COUNTER".
3. Press the VTR START button on the camera front side.
4. Check all of the followings.
  - The tape reels are rotating.
  - The number shown in the display window changes as the tape travels.
  - The tally lamps inside the viewfinder light up.
  - The RF and SERVO indicators do not appear in the display window.
5. Press the VTR START button again.
6. Check that the tape stops and the LED indicators (R TALLY) inside the viewfinder goes out.
7. Press the VTR button on the lens.
8. Check all of the followings.
  - The tape reels are rotating.
  - The number shown in the display window changes as the tape travels.
  - The tally lamps inside the viewfinder light up.
  - The RF and SERVO indicators do not appear in the display window.
9. Press the VTR button on the lens again.
10. Check that the tape stops and the LED indicators (R TALLY) inside the viewfinder goes out.
11. Press the RESET (MENU SET) button on the camera right side.
12. Check that the number of the counter display in the display window is "00:00:00".
13. Set the LIGHT switch to "ON".

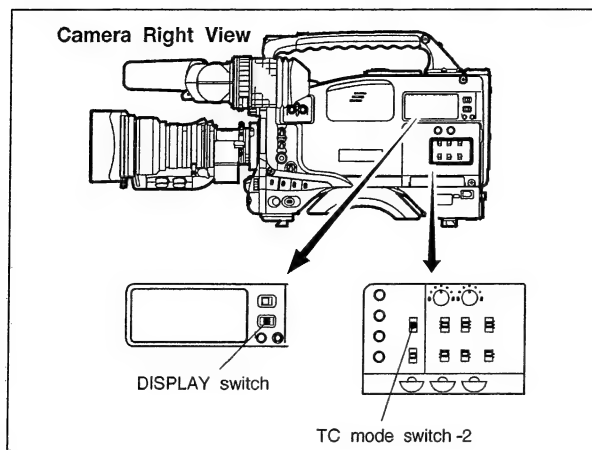
14. Check that the display window is now illuminated.
15. Press the REW button, and after rewinding the tape for a short while, press the PLAY button.
16. Check that recording, playback and rewinding are performed trouble-free.
17. Press the FF button.
18. Check that fast forwarding is performed trouble-free.

## 6.7 Inspecting Manual Recording Level Adjustment Function



1. Set the AUDIO IN switches in the VTR control panel to "FRONT".
2. Set the AUDIO SELECT switches to "MAN".
3. Turn the AUDIO LEVEL controls.  
Check that the audio level indicators changes.

## 6.8 Inspecting Time Code and User Bit



Set the user bit as required.

1. Set the DISPLAY switch to "UB".

### Reference

Refer to "5.7 Setting User Bit Value" for how to make setting.

2. Set the time code.

### Reference

Refer to "5.8 Setting Time Code Value" for how to make setting.

3. Set the TC mode switch -2 to "R-RUN".
4. Press the VTR START button on the camera front side or the VTR button on the lens.  
Check that the number shown in the display window changes as the tape travels.
5. Press the VTR START button or the VTR button again.  
Check that the tape stops and that the number in the display window remains unchanged.
6. Set the TC mode switch -2 to "F-RUN".  
Check that the number in the display window changes regardless of whether the tape is traveling.
7. Set the DISPLAY switch to "UB".  
Check that the set user bit is displayed in the counter area in the display window.

## 7. TROUBLESHOOTING

If you encounter a trouble while operating the camera, take proper countermeasures, referring to the following table.  
If the problem persists, consult with your sales representative.

Symptoms	Cause	Remedy
The unit does not power on when you set the POWER switch to "ON".	There is no battery pack loaded.	Load a battery pack.
	The battery pack has reached the end of its usable life.	Replaced the battery pack with a fully charged one.
	The AC pack is not connected, or it's power is not turned on.	Connect the AC pack. Or, turn on the power.
The tape transport does not operate when you press the VTR START button.	The POWER switch is set to "OFF".	Set the POWER switch to "ON".
	The VTR STBY/SAVE switch is set to "SAVE".	Set the VTR STBY/SAVE switch to "STBY".
	The unit has reached the end of tape.	Rewind the tape, or load a new cassette.
	The cassette is record-inhibited.	Either load a new cassette, or release the record-inhibit.
	An incorrect type of DVCAM or DV cassette is loaded. (The cassette memory indication blinks.)	Load a correct type of DV or DVCAM cassette.
The tape transport does not operate when you press any VTR operation button.	The unit has reached the end of tape.	Either rewind the tape, or load a new cassette.
	The cassette holder is not solidly closed after the cassette is inserted.	Press on the "PUSH" indication to close the holder solidly.
The video and audio outputs are not present.	The POWER switch is set to "OFF".	Set the POWER switch to "ON".
The power supply cuts while operating.	The battery pack is exhausted.	Replace the battery pack with a fully charged one.
The battery goes dead very quickly.	<ul style="list-style-type: none"> <li>The operating temperature is very low.</li> <li>The battery pack is inadequately charged.</li> <li>The battery pack is exhausted.</li> </ul>	Recharge the battery pack, or replace with a new fully charged one.
It is not possible to eject the cassette.	The battery pack is exhausted.	Replace the battery pack with a fully charged one.
	The POWER switch is set to "OFF".	Set the POWER switch to "ON".
	The cassette holder is not solidly closed after the cassette is inserted.	Press on the "PUSH" indication to close the holder solidly and then press the EJECT button.
The playback picture quality is poor. The playback picture or sound dose not appear.	The video heads are dirty.	Clear the video heads using a cleaning cassette.
All controls except the EJECT button are disabled.	There is condensation on the head drum.	Remove the cassette, power off, and wait until the condensation has evaporated.
Audio recording is not possible.	The AUDIO LEVEL controls are set to minimum position.	Adjust the setting of the AUDIO LEVEL controls.
The recorded sound is distorted.	The audio level is too high.	Adjust the setting of the AUDIO LEVEL controls and record.
The recorded sound has a high noise level.	The audio level is too low.	Adjust the setting of the AUDIO LEVEL controls and record.
The indication "Er91-13F" appears in the display window.	The unit has failed in loading or saving the cassette memory data.	Load a new cassette.
The cassette is automatically ejected.	An incorrect type of cassette is loaded.	Load a correct type of cassette.
<ul style="list-style-type: none"> <li>The time code setting is not possible.</li> <li>The time code value does not advance though the TC mode switch -1 or -2 is set to the "F-RUN" or "DATE/TIME".</li> </ul>	At the recording, the ClipLink function is set to "on" (meaning ClipLink shooting is allowed) in the VTR menu 211, CONT is displayed in the display window and the time code generator is in the REGEN mode.	Only the REGEN mode can be used for ClipLink shooting. If you will not perform ClipLink shooting, set the ClipLink function to "oFF".
When an ANTON/BAUER battery is used, though the battery is not exhausted, the BATT and WARN lamps inside the viewfinder blink.	The battery does not have the battery remainder display function though it is set as a battery with the function at the function setting.	When using a battery without the battery remainder display function, disconnect the connectors between the camera and battery bracket.
The camera sensitivity is low.	The SHUTTER/SUP-V switch is set to "ON".	Set the SHUTTER/SUP-V switch to "OFF" or select optimum shutter speed.
	The optical filter is not proper.	Turn the OPTICAL FILTER knob to select a optical filter suited to lighting condition.
The camera sensitivity is high.	The HYPER GAIN button is set to "ON".	Set the HYPER GAIN button to "OFF".
	The GAIN SELECT switch is set to "MID" or "HIGH".	Set the GAIN SELECT switch to "0".
	The optical filter is not proper.	Turn the OPTICAL FILTER knob to select a optical filter suited to lighting condition.
The microphone sensitivity is low or the microphone is not operative.	Any microphone is not properly connected to the AUDIO IN connector.	Connect a microphone to the AUDIO IN connector properly.



## 8. SPECIFICATIONS

### 8.1 Specifications

#### Camera Section

1. Image sensor : 2/3 inch CCD x3
2. Pixels :
  - HL-DV7W 16 : 9 IT CCD
  - NTSC : 520,000 pixels, PAL : 600,000 pixels
  - HL-DV5 4 : 3 IT CCD
  - NTSC : 410,000 pixels, PAL : 470,000 pixels
3. Sensitivity : F11 2000 lux
4. Minimum illumination :
  - approx. 0.12 lux (F1.4 lens, +48dB)
5. S/N ratio : 64dB (62dB for PAL)
6. Modulation (5MHz) :
  - HL-DV7W 70% or more (16 : 9)
  - HL-DV5 55% or more
7. Horizontal resolution :
  - HL-DV7W 800 TV lines (at center)
  - HL-DV5 850 TV lines (at center)
8. Vertical resolution :
  - NTSC 400 TV lines (SUPER-V : OFF)
  - 480 TV lines (SUPER-V : ON)
  - PAL 450 TV lines (SUPER-V : OFF)
  - 570 TV lines (SUPER-V : ON)
9. Registration error :
  - 0.03% or less (without lens)
10. Smear level :
  - HL-DV7W 125dB
  - HL-DV5 120dB
11. Sampling frequency :
  - HL-DV7W 18.00000MHz
  - HL-DV5 14.31818MHz
12. Quantization bit : 10bit
13. Gain selection :
  - 3, 0, +3, +6, +9, +12, +18, +30, +36, +42, +48 dB
14. Electronic shutter (preset) :
  - 1/60 (OFF)\*, 1/100, 1/120, 1/250, 1/500, 1/1000,
  - 1/2000 sec \*1/50 for PAL
15. Variable shutter :
  - NTSC 1/60.3 to 1/787 sec
  - PAL 1/50.3 to 1/781 sec
16. Lens mount : B4 (B3 type : spec.)
17. Optical filters :
  - No.1 3000K
  - No.2 5600K+1/16ND
  - No.3 5600K
  - No.4 5600K+1/64ND
18. External sync signal :
  - VBS : 1Vp-p  $\pm$ 6dB 75 $\Omega$
  - or
  - BBS : 0.45Vp-p  $\pm$ 6dB 75 $\Omega$
19. Video output : VBS : 1Vp-p 75 $\Omega$

20. Monitor output : VBS or VS : 1Vp-p 75 $\Omega$

21. Y/C output : Y : 1.0Vp-p 75 $\Omega$   
C : 0.286Vp-p 75 $\Omega$

#### VTR Section (Video)

##### [ Playback with Standard Unit ]

1. Frequency response : Y
  - NTSC 30Hz to 5.0MHz  $\pm$ 1.0dB
  - PAL 25Hz to 5.5MHz +1.0/-2.0dB
  - PB/PR
    - NTSC 30Hz to 1.5MHz +1.0/-5.0dB
    - PAL 25Hz to 2.0MHz +1.0/-2.0dB
2. S/N ratio : 55dB or more
3. K factor (2T pulse) : 2% or less
4. Y/C delay : 30nsec or less

#### VTR Section (Audio)

##### [ Recording Method ]

2ch mode PCM 48KHz  
4ch mode PCM 32KHz

##### [ Playback with Standard Unit ]

1. Frequency response :
  - 48kHz 20Hz to 20kHz +0.5/-1.0dB
  - 32kHz 20Hz to 14.5kHz +0.5/-1.0dB
2. Dynamic range : 80dB or more
3. Distortion :
  - 0.08% or less (at 48kHz as 1kHz reference level)

#### Common Section

1. Power voltage : +12V (standard)
  - Tolerance : +11V to +17V
  - DC IN connector : XLR-4 (with switch)
2. Power consumption :
  - HL-DV7W
    - NTSC approx. 28W
    - PAL approx. 29W
  - HL-DV5
    - NTSC approx. 27W
    - PAL approx. 28W
- (+12V input, 1.5-inch B/W VF, 4:3 VCR recording)
3. Dimensions :
  - W 123.5mm, H 200mm, D 326mm
4. Weight :
  - approx. 4.5kg (including viewfinder, microphone)
  - approx. 6.5kg (including viewfinder, microphone, lens, battery, tape)
5. Operating temperature : 0 to +40 degrees Celsius
6. Storage temperature : -20 to +60 degrees Celsius
7. Operating humidity : 25% to 85% (no condensation)

**Others**

1. Tape speed : approx. 28.2mm/s
2. Recording time : standard cassettes : max. 184min  
mini cassettes : max. 40min
3. Fast forward time : 12min or less  
(184min standard cassettes)
4. Rewind time : 12min or less  
(184min standard cassettes)

**8.2 Connectors****VIDEO**

VIDEO OUT	BNC (with SW) 1.0Vp-p 75Ω
MON OUT	BNC 1.0Vp-p 75Ω
GENLOCK IN	BNC 1.0Vp-p 75Ω (VBS)
(VIDEO IN)	0.45Vp-p 75Ω (BBS)
DV OUT	6-pin i.LINK (IEEE1394)
Y/C OUT (optional)	4-pin
VTR OUT (optional)	26-pin

**AUDIO**

FRONT MIC	MiniXLR 3-pin (female) 3kΩ, balanced +48V PHANTOM ON/OFF (switch selection) -60dBu
AUDIO IN	XLR 3 pin male x2 (JPN) 3 pin female x2 (USA, EUR) High impedance (10kΩ or more), balanced LINE/MIC/+48V PHANTOM MIC ON/OFF (switch selection) MIC : -60dBu LINE : 0dBu
AUDIO OUT	XLR 3 pin female x1 (JPN) 3 pin male x1 (USA, EUR) CH1/MIX/CH2 (switch selection) +4/0/-10dBu (selection), Low impedance, balanced ø3 Mini jack OFF for earphone use
EARPHONE SPEAKER	

**TC**

TC IN	BNC 0.5 to 18Vp-p 10kΩ
TC OUT	BNC 1Vp-p 75Ω

**VF**

20-pin

**LENS**

12-pin

**REMOTE**12-pin  
(for RM-11, RS-11)**DC**

DC IN	XLR 4-pin (with SW)
DC OUT	4-pin DC12V 100mA (for wireless receiver)

## 8.3 Constitution

### Standard Constitution

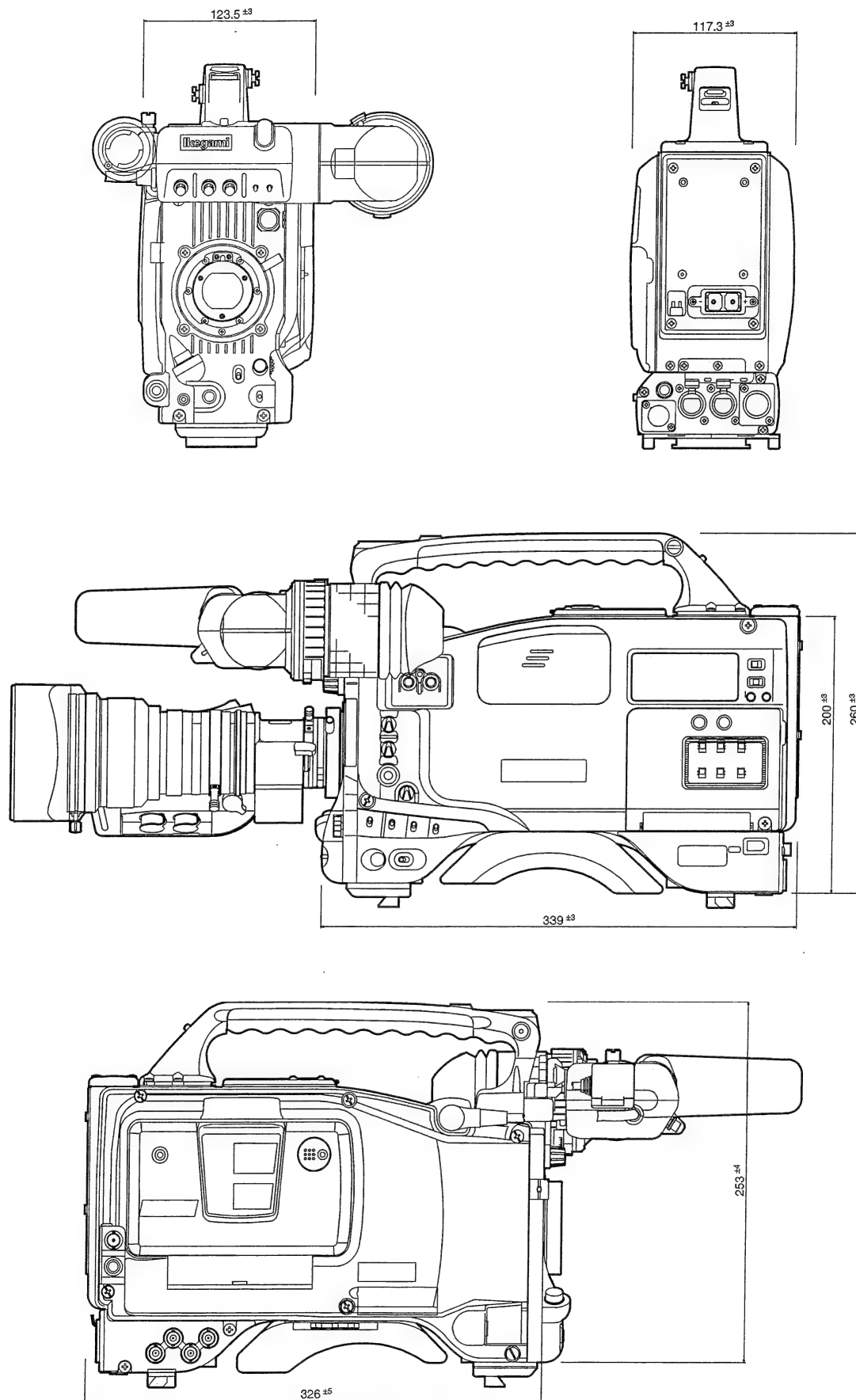
1. Camera body
2. 1.5-inch B/W viewfinder  
VF15-32 (corresponding to serial control)
3. Standard accessories
  - Tripod mount plate : T-791
  - Microphone : MC-11
    - compact, lightweight, keen directional
    - (+48V PHANTOM)
  - Operation manual

### Optional

1. Rain cover : XRP-444 (black), XRP-434 (gray)
2. Cold weather cover
3. Test extender : XTE-307 (for camera section)
4. Maintenance manual
5. Battery case
  - : NH-100, DC-500, BAC-201V, BAC-202V
6. AC pack : ACP-26, AC-111
7. Carrying case : XCC-754
8. Soft carrying case : XCC-764
9. Built-in wireless receiver
  - : EK3041-U (Sennheiser electronic)
10. Transmitter and microphone for the above receiver
11. Memory card : Smart Media™ (SSFDC 2MB)
12. Shoulder strap : SB-10
13. 5-inch B/W viewfinder : VF5-6
14. VTR adaptor : VTA-204V
15. Remote controllers
  - : RCP-11, RCP-50, RM-11, RS-11
16. Y/C adaptor : YCA101DV

## 8.4 External Appearance

unit : mm



## 9. CHANGING INFORMATION

This chapter explains revision contents in case of design version and at request of customers.  
Read by comparing this information with the main part of manual.

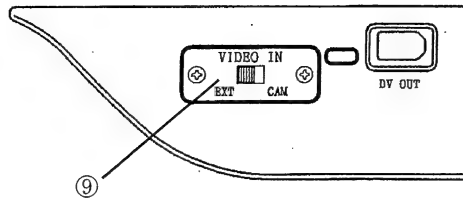
Model names described in the manual have been changed to below new model name because of version up. 2003.03

**HL-DV7W→HL-DV7AW**

**HL-DV5 →HL-DV5A**

## 2. NAME AND FUNCTION OF EACH PART

### 2.3 CAMERA RIGHT VIEW-2



#### ⑨ VIDEO IN SWITCH

This VIDEO IN SWITCH is only enable when optional VIDEO IN BOARD installed.

To record an external composite signal to the VTR portion of the camera.

Connect the input camera of the external video signal to GENLOCK IN connector on the left side of camera.

**EXT:** Mode for recording external composite signal by VTR portion of the camera.

**CAM:** Mode for conventional recording of the camera shooting picture.

## 4. OPERATIONS OF CAMERA SECTION

### RECORDING OF EXTERNAL VIDEO INPUT

1. Connect external input cable to GENLOCK IN connector on the left side of camera.

2. Select "EXT" of VIDEO IN SWITCH.

VIDEO OUT of the camera is turned to external video input picture.

No character indication appears on viewfinder.

3. Push VTR START button of the camera or VTR button of the lens to start recording.

REC lamp of viewfinder is ON while recording.

4. Push VTR START button or VTR button again to stop recording

#### Notice

When external video signal is not input into GENLOCK IN connector, VIDEO OUT of the camera will not changed to external video picture in spite of VIDEO IN SWITCH position.

When optional VIDEO IN BOARD is not installed in the camera, VIDEO OUT of the camera will not changed to external video picture in spite of VIDEO IN SWITCH position.

When VIDEO IN SWITCH is set "EXT" and VIDEO OUT is changed to external video picture, the camera is Genlocked in spite of the setting of GENLOCK ON/OFF in "OTHERS" of Normal Menu and Maintenance Menu(3/3)

## 4 OPERATIONS OF CAMERA SECTION

### c) AUTO IRIS SET

[ IRIS GAIN ]

AUTO IRIS SET	
QUIT	
IRIS SET MODE	OFF
IRIS LEVEL SET	-60
PEAK RATIO SET	-50
→ IRIS GAIN	5
LENS LIMIT	F22
LENS ADJUST	OFF

#### Notice

Standard "IRIS GAIN" setting value is 5. Keep the value unless Auto Iris problem occurs.

If the problem is not solved with above adjustment, adjust Auto Iris sensitivity with trimmer of the lens, too.

Depending of the lens characteristic, there is a possibility that Auto Iris starts shuttering or responds too slowly.

To avoid those problem, the Auto Iris sensitivity of the camera can be adjusted.

1. Remove a cover of "SENS" or "IRIS GAIN" indicated on lens grip and find trimmer inside for Auto Iris sensitivity. Set to the center of Auto Iris sensitivity position with screw driver.
2. Set "IRIS SET MODE" ON in Sub Menu. It enables "IRIS GAIN" adjustment.
3. Select and Enter "IRIS GAIN".
4. Rotate Rotary Pulse switch and adjust to proper value. In case of shuttering, adjust to smaller value. Or adjust to larger value for too slow response. The setting value becomes effective with pushing SET button.
5. After the above setting, set "IRIS SET MODE" back to OFF. If Sub Menu is quitted, "IRIS SET MODE" turns OFF automatically.

## 4. OPERATIONS OF CAMERA SECTION

### 4.7 Using Memory Card

#### [ Format of Memory Card ]

To format to use with the camera.

#### Caution

By formatting Memory Card, all stored data is cleared.

MEMORY CARD		
LOAD FILE	(	)
LOAD DATE	SCENE1-8	
LOAD(→CAMERA)		
SAVE FILE	(	)
SAVE DATA	SCENE	
SAVE(→M.CARD)		
FORMAT/DELETE		
M.CARD NAME	(	)

1. Select "FORMAT/DELETE", below Sub Menu is indicated on viewfinder.

FORMAT/DELETE		
FORMAT		
M.CARD TEST		
DELETE FILE (		)
DATE		
DELETE		

2. Select "FORMAT" and push set button, "CANCEL" starts flushing. Rotate Rotary Pulse Switch and select "EXECUTE". Push set button to start formatting.
3. After competing format, "COMPLETE" is indicated on viewfinder.
4. To test format is done correctly or not, Select "M.CARD TEST" and push set button, "CANCEL" starts flushing. Rotate Rotary Pulse Switch and select "EXECUTE". And push set button to start test.
5. After competing test, "TEST OK" is indicated on viewfinder
6. Select and do "CANCEL" at "FORMAT" or "M.CARD TEST", Format and Test are cancelled without proceeding.

#### [ Delete stored file ]

To delete stored data in Memory Card.

MEMORY CARD		
LOAD FILE	(	)
LOAD DATE	SCENE1-8	
LOAD(→CAMERA)		
SAVE FILE	(	)
SAVE DATA	SCENE	
SAVE(→M.CARD)		
FORMAT/DELETE		
M.CARD NAME	(	)

1. Select "FORMAT/DELETE", below Sub Menu is indicated on viewfinder.

FORMAT/DELETE		
FORMAT		
M.CARD TEST		
DELETE FILE (		)
DATE		
DELETE		

2. Select "DELETE FILE" and push set button, File Name stored is indicated in ( ). Rotate Rotary Pulse Switch and select File Name to be deleted. And push set button to delete. The sort of data is indicated as "DATA" at that time.
3. Select "DELETE" and push set button, "CANCEL" starts flushing. Rotate Rotary Pulse Switch and select "EXECUTE". And push set button to start deleting.
4. After competing delete, "COMPLETE" is indicated on viewfinder. And content of "DELETE FILE" becomes empty.
5. Select and do "CANCEL", delete is cancelled without proceeding.

#### Notice

In ( ) of DELETE FILE, stored File Name with cdf file code is indicated which was stored by the camera or Control Panel. About the other file code given with Control Panel, file delete can not be done by camera operation, but by Control Panel. In case of no file stored in Memory Card, "NO FILE" is indicated in ( ).



**HL-DV5 / HL-DV7W**  
**Digital Camera/Recorder**  
**OPERATION MANUAL**

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